Index to MECHANICAL ENGINEERING

Volume 82, January—December, 1960

Issue	Letter Code
January	Ja
February	F
March	Mr
April	Ap
May	My
June	Je
July	Jl
August	Ag
September	S
October	O
November	N
December	D

A

ABBASSI, M. M.
Stresses in curved beams of noncircular center line (A) ... O 91

ABBOTT, R. E.
Increased cushioning capacity—a requirement of tomorrow's freight car (A) ... Ap 110

ABBOTT, T. A.
Technical personnel—evaluation and development (D) ... F 116

ACCELERATION. *See* PHYSIOLOGY

ACCINELLI, J. B.
Gear and bearing lubrication in extreme environments with polyphenyl ethers (A) ... D 84

ACKER, R. M.
Temperature control system for the Atlas Able-4 lunar satellite (A) ... S 94

ACTON, W. P.
Factors affecting the long-term performance of polyethylene plastic pipe (A) ... F 105

ADAMS, WALTER HOLBROOK
Obituary ... Ag 139

ADDIE, A. N.
Design and development of turbochargers for the General Motors Corporation series 567 engines (A) ... Jl 76

ADHESION (RAIL)
Slippery spot concept of adhesion (A) ... Je 100
Understanding wheel-rail adhesion (A) ... Jl 78

ADHESIVES
Fillers and stresses in an epoxy resin (A) ... D 86

AERODYNAMICS
Wings that won't stall? ... Ap 81

AGUET, E.
Three years' operating experience with 7500 kw gas-turbine plants in Belgian steelworks (A) ... Je 91

AIR CONDITIONING. *See also* SOLAR ENERGY
Moisture accumulation in aircraft soundproofing and insulation (A) ... Ag 81
Moisture migration in an aircraft cabin wall (A) ... Ag 80

AIR HEATERS
Air heater for 3000 R, 600 psia ... Ag 40

AIR POLLUTION. *See also* GAS TURBINES
Control of air pollution from oil-burning power plants ... Ap 63, (D) Ag 92
Current status of air-pollution research in the United States (A) ... F 111
Effect of operating variables on the stack emission from a modern power station boiler (A) ... F 111
Smog eye irritants identified (A) ... Ja 53

AIR PROPELLERS
The ducted propeller ... D 45
Variable-camber propeller (A) ... O 80

AIR TRANSPORT. *See also* AIRPLANE ENGINES, SAFETY ENGINEERING
Air-luggage handling improved (A) ... S 80
Competitive air cargo? (A) ... Mr 85
Convertiplanes in commercial operation (A) ... Ag 78
Development of United Air Lines' jet transport galleys (A) ... Ag 81
Over-all braking for jet transports (A) ... Ag 81
Short-field airliners ... O 53

AIRCRAFT CARRIERS. *See* SHIPS

AIRPLANE ELECTRONIC EQUIPMENT
Modular design (A) ... Ag 82
Uniform design criteria (A) ... Ag 82

AIRPLANE ENGINES. *See also* GAS TURBINES
Air Force maintenance on the J79 engine (A) ... S 96
B. E. A.'s experience with propeller turbine engines (A) ... S 97
BOAC's maintenance experience of the Rolls Royce Avon Mark 524 in its Comet-4 jets (A) ... S 96
Developing reliability in the T58 engine control (A) ... My 89
Experimental investigation of the suitability of JP-4 fuel for the regenerative cooling of a hypersonic ramjet engine (A) ... N 104
Gas-turbine reliability control procedures (A) ... My 89
Jet-engine trend analysis (A) ... My 89
Maintaining American Airlines' turbojet engines (A) ... Ag 79
Maintenance of the Bristol Proteus in BOAC's Britannia aircraft (A) ... S 97
Overhaul shop planning for the P&WA turbojets (A) ... Ja 67
Small turbojet (A) ... Mr 87
The 2000 hour Proteus turboprop ... Ja 37

AIRPLANE WINGS. *See also.* THERMAL STRESSES
Approximate analysis of the influence of aerodynamic heating and initial twist on the torsional stiffness of thin wings (A) ... O 89
Wings that won't stall? ... Ap 81

AIRPLANES. *See also* AIR CONDITIONING, AIR TRANSPORT, HELICOPTERS, PHYSIOLOGY, SAFETY ENGINEERING, STRUCTURES
Aircraft seating—forward facing...or rearward ... F 60
All-steel airplane (A) ... Mr 84
Determination of the in-flight vertical (A) ... S 95
Development of a maintenance program for jet transport aircraft (A) ... Ja 67
Dynamic loads during nose tow catapulting (A) ... S 96
The FAA looks at jet transport mechanisms (A) ... Ag 81
Fixed wing STOL aircraft with distributed suction BLC for extended latitude (A) ... Ag 78
Improved air-induction systems through the use of interaction (A) ... My 87
Navy approach to the development of airframe structural design control requirements (A) ... S 92
Nuclear-powered manned aircraft (A) ... Jl 62
Safety considerations in the design of flight control systems for Navy aircraft (A) ... S 95
Short-field airliners ... O 53
Structural designers' view of criteria trends (A) ... S 96
Tilt-wing propelloplane (D) ... My 98
Turbine propeller power plant airline maintenance (A) ... Ja 68
Unique aspects of the F4H airplane reliability effort (A) ... Ap 107

ALBERT, CALVIN DODGE
Obituary ... Ja 138

ALBRECHT, P.
New developments in the theory of the metal-cutting process, 1—The ploughing process in metal cutting (A) ... Ja 70

ALEXANDER, W. E.
Evaluation and development of technical personnel (AC) ... F 116

ALFREY, TURNER, JR.
Uniform two-way orientation of plastic films (A) ... F 105

ALLEN, R. C.
Biography ... Ag 130
Elected Fellow of ASME ... Ag 130

ALLEN, R. C. (*continued*)
World still looks to U.S.A. for technical leadership (A) ... Jl 84

ALLEN, R. E.
Development of floating ring type stuffing boxes for Eddystone boiler feed pumps (A) ... Ap 106

ALLINGHAM, WILLIAM D.
Determination of boiling film coefficient for a heated horizontal tube in water-saturated wick material (A) ... N 105

ALMEIDA, JOSEPH SENA RODRIQUE
Obituary ... Je 130

ALTIMETERS. *See* INSTRUMENTS

ALTMAN, M.
Local and average heat-transfer and pressure-drop for refrigerants evaporating in horizontal tubes (A) ... My 91

ALUMINUM. *See also* FORGING, METAL DRAWING

AMERICAN INSTITUTE OF MINING, METALLURGICAL AND PETROLEUM ENGINEERS
ASME-AIME Joint Solid Fuels Conference, 1960 ... D 117

AMERICAN POWER CONFERENCE
Program for 1960 meeting ... Mr 116

AMERICAN SOCIETY FOR ENGINEERING EDUCATION
68th Annual ASEE Meeting at Purdue University ... Ag 102

AMERICAN SOCIETY OF MECHANICAL ENGINEERS
Annual Report* ... Ag 36
ASME looks to the future ... Ag 36
Administration
Regional and administrative years changed ... Ag 119
Applied Mechanics Division Conference, National Conference, Penn State, 1960 ... My 120, Ag 112
West Coast Conference, 1960 ... Mr 127, Je 120, S 114
Codes and Standards Workshop ... F 136, Mr 133, Ap 144, Jl 115, S 116, D 120
Committees
Boiler and Pressure Vessel Committee to hold 1960 out-of-town meeting in Denver ... Ap 135
Joint Committee on Uniformity of Methods of Water Examination, 1960 annual report ... Jl 116
Nominating Committee organizes for 1961 ... Ag 127
Council
Actions, 1959 ... Ja 100
Actions, 1960 ... Ja 103, Ag 134
Actions on 1960 National Agenda ... D 125
Executive Committee actions ... Mr 133, Ap 147, My 131, Je 126, Jl 117, D 122
Divisions
Future ASME organizational structure? ... Ja 76
Fuels Division
ASME-AIME Solid Fuels Conference, 1960 ... Ag 116, S 115, D 117
Announcement of symposium: Fuels—their status today ... Ag 133
Gas Turbine Power Division
Conference, 1959 ... Ja 127
Conference, 1960 ... My 122
Heat Transfer Division
Joint conference with AIChE, 1960 ... Je 120, O 126
Hydraulic Division
Conference, 1959 ... Ja 127
Conference, 1960 ... My 122
Junior Forum ... Ja 133, F 134, Mr 132, Ap 143, My 129, Je 124, Jl 113, Ag 133, S 118, O 134, N 132
Lecturers, 1958–1959 ... Ja 110
Lubrication Division
ASME-ASLE Lubrication Conference, 1960 ... S 116, D 116
Lubrication Division Symposium, 1960 ... F 132

* The Annual Report for 1958-1959 was published as Section Two of *Mechanical Engineering* for January, 1960.

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

ASME (*continued*)
Machine Design Division Conference, 1960 . . . . . F 131, Mr 124, Ap 136, Jl 100
Maintenance and Plant Engineering Division Conference, 1960 . . . . . Mr 126, Je 118
Materials Handling Division Conference, 1960 . . . . . Je 118
Meetings
Annual Meeting, 1959 . . . . . Ja 76
Calendar of Meetings . . . . . Ja 129, F 135, Mr 131, Ap 149, My 130, Je 122, Jl 109, Ag 128, S 117, O 136, N 124, D 121
The meetings and the show (Ed) . . . . . N 45
Semi-Annual Meeting, Dallas, 1960 . . Ap 132
Summer Annual Meeting, 1960 . . . . . Ag 106
Symposium on load carrying capacity of bearings . . . . . My 126
Technology Executives Conference, 1960 . . . . . N 122
Winter Annual Meeting, 1960 . . S 112, O 112
Members
Fellows elected . Ja 131, F 138, Jl 109, Ag 129
Insurance program offers increased benefits . . . . . N 135
Membership
Candidates . . . . . Ja 137, F 143, Mr 137, Ap 149, My 136, Je 130, Jl 121, Ag 139, S 120, O 137, N 136, D 130
Metals Engineering Division Conference, 1960 . . . . . Mr 127, Je 114
News . . . . . Ja 127, F 131, Mr 124, Apr 132, My 120, Je 114, Jl 95, Ag 106, S 112, O 112, N 122, D 115
Obituaries . . . . . Ja 138, F 143, Mr 138, Ap 151, My 137, Je 130, Jl 121, Ag 139, S 123, O 141, N 138, D 130
Officers
Nominations for 1959–1960 . . . . . Ag 122
Nominations open for 1962 . . . . . N 133
Oil and Gas Power Division Conference, 1960 . . . . . Ap 138, Jl 95
Organization future ASME organizational structures? . . . . . Ja 77
Petroleum Division Conference, 1960 . . . . . Jl 108, Ag 114, N 125
Power Show, 1961 . . . . . Ag 129
Production Engineering Division Conference, 1960 . . . . . Ap 139, Jl 98
Publications
Applied Mechanics Reviews reports growth . . . . . Ja 129
Availability list of
ASME-AIEE Power Conference papers, 1960 . . . . . N 131
ASME-AIME Fuels Conference papers, 1960 . . . . . D 118
ASME-ASLE Lubrication Conference papers, 1960 . . . . . D 116
Annual Meeting papers, 1959 . . . . . Ja 114
Applied Mechanics Conference papers, 1960 . . . . . Ag 113
Aviation Conference papers, 1960 . . . . . Ag 111
Joint Automatic Control Conference papers, 1960 . . . . . O 130
Joint Gas Turbine Power-Hydraulic Conference papers, 1960 . . . . . My 125
Machine Design Division Conference papers, 1960 . . . . . Jl 104
Maintenance and Plant Engineering Conference papers, 1960 . . . . . Je 119
Metals Engineering Conference papers, 1960 . . . . . Je 115
Oil and Gas Power Conference papers, 1960 . . . . . Jl 97
Petroleum Engineering Conference papers, 1960 . . . . . N 126
Production Engineering Conference papers, 1960 . . . . . Jl 99
Railroad Division Conference papers, 1960 . . . . . Je 117
Rubber and Plastics Conference papers, 1960 . . . . . D 115
Summer Annual Meeting papers, 1960 . . . . . Ag 111
Textile Engineering Conference papers, 1960 . . . . . My 131
Unpublished ASME papers . Je 100, D 95
For the 50th time (the Mechanical Catalog) (Ed) . . . . . O 41
"Friction and wear in machinery" . . . . N 118
Pamphlet papers: prices increased . . . Ag 119
"Pressure vessel and piping design" . . . N 118
Transactions quarterlies: changes for Hydraulic Division papers . . . . . Ap 140
Railroad Division Conference, 1960 . . . . . Mr 125, Je 116
Railroad Division Conference, 1960 . . . . Je 116
Regional Administrative Committee Meetings, 1960 . . . . . Ag 120
Regions increased from eight to ten . . . . Ag 118
Rubber and Plastics Division Conference, 1960 . . . . . Ag 117, D 115
Sections
Mid-Continent Section forms Petroleum Activities Committee . . . . . Mr 130

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

ASME (*continued*)
Mid-Continent Section luncheons win crowds . . . . . Ap 140
Pittsburgh Management Division holds cost control meeting . . . . . Mr 130
Pittsburgh Section sponsors talk on managerial control and utilization of engineering manpower . . . . . My 128
Professional registration aided by Nebraska Section . . . . . Mr 129
San Francisco section holds conference on creativity and engineering management . . . . . F 133
Student branches
Regional Student Conferences, 1960 . . . . . Mr 131, O 131
Regional Student Conference winners, 1960 . . . . . O 133
Technical Digest of ASME papers . . . . . Ja 66, F 104, Mr 96, Ap 102, My 86, Je 90, Jl 68, Ag 78, S 90, O 86, N 98, D 82
Textile Engineering Division Conference, 1960 . . . . . F 132, My 131
Woman's Auxiliary
Annual Meeting, 1959 . . . . . Ja 111
Awards aid engineering students . . . . . S 119

Amidon, Lee Leonard
Obituary . . . . . D 130

Anderson, A. D.
Experimental study of the effects of non-uniform wall temperature on heat transfer in laminar and turbulent axi-symmetric flow along a cylinder (A) . . . . . My 92

Anderson, C. A.
More laboratory for less money . . . . . My 57

Anderson, J. B.
Advanced pressurized-water-reactor electric generating station (A) . . . . . Mr 99

Andrews, William McIntosh
Obituary . . . . . N 138

Angst, Walter
New fail-safe compensated altimeter (A) . . . . . S 94

Angus, Harry Holborn
Obituary . . . . . F 143

Angus, James
New fail-safe compensated altimeter (A) . . . . . S 94

Angus, Robert W.
Obituary . . . . . N 138

Antennas. *See* Radar

Antifriction Bearings
Volume of stressed material involved in the rolling of a ball (A) . . . . . D 84

Apple, J. M.
New developments in plant layout techniques (A) . . . . . My 97

Applied Mechanics
Normal modes of nonlinear dual-mode systems (A) . . . . . Mr 106

Archbold, M. J.
Electrostatic precipitators (D) . . . . . S 100

Aref, M. N.
Pressurization of granular solid fuels (A) . . . . . Ap 109

Armenakas, A. E.
Shear buckling of bars (A) . . . . . Ap 114

Arms, Merton H.
Obituary . . . . . S 123

Armstrong, Clarence E.
Obituary . . . . . Mr 138

Arpaci, V. S.
Transient conduction in coaxial cylinders with relative motion and heat generation (A) . . . . . O 91

Arwas, E. B.
Performance of elastic, centrally pivoted, sector, thrust-bearing pads—Part 1 (A) . . . . . D 84

Assembly. *See* Automation

Assembly Lines. *See* Manufacturing

Atkinson, Kerr
Biography . . . . . Jl 111
Elected Fellow of ASME . . . . . Jl 111

Atomic Energy
"Atomic Energy in Action" exhibit opened recently in New York City . . . . D 109
The "Plowshare" program (A) . . . . . N 86
Progress on fusion power (A) . . . . . F 87

Ausman, J. S.
Improved analytical solution for self-acting, gas-lubricated journal bearings of finite length (A) . . . . . D 84

Austin, H. C.
Control of air pollution from oil-burning power plants . . . . . Ap 63, Ag 93

Austin, Kenneth A.
Gas turbine propulsion for hydrofoil boats . . . . . Je 48

Automatic Control. *See also* Inspection, Machine-Shop Practice, Machine Tools, Remote Control

Automatic Control (*continued*)
ASME, AIEE, and IRE hold Automatic Techniques Conference in Cleveland . . . . . Je 117
Approximate method for calculating the time response in linear, time-varying, and nonlinear automatic control systems (A) . . . . . N 108
Automation—boiler operation . . . . . N 68
Automation—economic justification . . . . N 74
Automation—turbine generators . . . . . N 72
Continuous production control (A) . . . . . N 84
Design of optimum multivariable control systems (A) . . . . . N 107
Determination of cutter trajectories for contoured turbine buckets (A) . . . . . Ja 71
Dynamic synthesis of higher-order, optimum saturating systems (A) . . . . . N 107
Electrohydraulic turbine control (A) . . . My 76
First Joint Automatic Control Conference draws large audience . . . . . O 129
Investigation of periodic modes of sampled-data control systems containing a saturating element (A) . . . . . N 108
J. A. Hrones urges development of automatic controls in Clayton lecture . . . . . Ap 137
Joint Automatic Control Conference, M.I.T., 1960 . . . . . Je 122, J 106
Kinetic Lyapunov function for stability analysis of nonlinear control systems (A) . . . . . N 107
Manufacturing-cycle control (A) . . . . . Jl 54
Metal-forming under electronic sequencing (A) . . . . . Je 99
National Automatic Control Conference held in Dallas . . . . . Ja 128
Numerical control developments (A) . . . . Je 99
Optimum response of second-order, velocity-controlled systems with contactor control (A) . . . . . N 107
Pulse-width relay control in sampling systems (A) . . . . . N 107
Reduction of dimensionality, dynamic programming and control processes (A) . . . . . N 107
Report on Russian automation to highlight Joint Automatic Control Conference . . . . . S 119
Rufus Oldenburger reports on automatic control education in USSR . . . . . O 107
Solution space approach to optimal control problems (A) . . . . . N 108
Steam-turbine buckets automatically milled . . . . . Ja 44
Third Annual Joint Conference on Automatic Techniques . . . . . Mr 125
Tools and machines—simultaneous development . . . . . N 49

Automation. *See also* Machine-Shop Practice
Are you considering numerical control? . . D 56
Automatic inspection and assembly (A) . . . . . Je 99
Techniques and economic considerations affecting automatic assembly of telephone products (A) . . . . . Je 100

Automobiles. *See* Motor Vehicles

Avery, C. L.
Field adjustment of hydraulic-turbine governors (A) . . . . . Ja 69

Aviation
Air-safety research appraised by Cornell-Guggenheim Aviation Safety Center . . Jl 85

Avitzur, B.
Analysis of power spinning cones (A) . . . . Mr 97

Ax, Albert F.
Possibilities for human simulation (A) . . . S 95

Aydelott, J. C.
Slipperty spot concept of adhesion (A) . . . . . Je 100

B

Bachmann, R. W.
Clutch-fluid coupling-hydraulic torque converter (AC) . . . . . My 98

Bahr, H. C.
Recent improvements in load capacity of large-steam-turbine thrust bearings (A) . . . . . Ap 104

Bailie, Bertram Lawrence
Obituary . . . . . N 138

Baillie, W. E.
Impact as related to freight-car and lading damage (A) . . . . . Ap 110

Baker, James A.
Are you considering numerical control? . . D 56

Baker, W. E.
Elastic-plastic response of thin spherical shells to internal blasting loading (A) . . F 114
Modeling of large transient elastic and plastic deformations of structures subjected to blast loading (A) . . . . . O 90
Obtaining stress-% compression diagrams of foamed plastics at high rates of compression (A) . . . . . D 86

Balancing. *See* Instruments—Vibration

BALDWIN, D. J.
Lubrication at high temperatures with vapor-deposited surface coatings (A).. D 83

BALTRUKONIS, J. H.
Free, transverse vibrations of a solid elastic-mass in an infinitely long, rigid, circular-cylindrical tank (A)..... O 95

BANASH, JAMES IRA
Obituary.....Ap 151

BARBER, E. M.
Grease lubrication studies with plain journal bearings (A)..... D 83

BARBOUR, ROBERT
Obituary..... D 131

BARKALOW, C. E.
Determination of the in-flight vertical (A)..... S 95

BARKER, J. W.
Biography..... Jl 111
Elected Fellow of ASME..... Jl 111

BARKER, ORRIN WILLIAM
Obituary..... D 131

BARNHART, D. H.
External corrosion of superheaters in boilers firing high-alkali coals (A).....Ap 108

BAROMETERS. *See* INSTRUMENTS

BARON, MELVIN L.
Biography.....Ja 108
Receives Spirit of St. Louis Junior Award.....Ja 108

BARREKETTE, E. S.
Thermoelastic stresses in beams (A)..... O 92

BARRELL, R. W.
Application of diesel engines to industrial diesel-electric locomotives (A).....Mr 104

BARS. *See* BUCKLING

BARTLETT, HENRY
Obituary.....My 137

BARTOLERO, CARLO
Modern developments of centrifugal pumps (A)..... D 92

BARY, C. W.
Decentralized peak-shaving (A)..... My 86

BASTIAN, E. L. H.
Cutting fluids (a review of the literature for 1959)..... S 72

BATH, J. CHESTER
Obituary..... F 144

BATTEAU, D. W.
Performance criterion for linear systems (A).....Ap 112

BAUER, H. J.
Biography.....Ag 131
Elected Fellow of ASME.....Ag 131

BAUM, C. P.
Navy approach to the development of airframe structural design control requirements (A)..... S 92

BAUMEISTER, PAUL A.
Obituary..... S 123

BAXTER, D. C.
Requirements for a hybrid analog-digital computer (A)..... Ja 66

BAXTER, M. L., JR.
Helixform bevel and hypoid gears (A)... Ja 72

BAXTER, WALTER A., JR.
Electrostatic precipitators.....My 54, S 100

BEAL, T. E.
Hydraulic servo transmissions for target tracking radar drives (A).....My 86

BEAMAN, C. D.
Obtaining stress-% compression diagrams of foamed plastics at high rates of compression (A)..... D 86

BEAMS
Additional deflection of a cantilever due to the elasticity of the support (A).... O 94
Dominance of shear stresses in early stages of impulsive motion of beams (A)..... F 114
Effect of small hub-radius change on bending frequencies of a rotating beam (A)..... O 94
Forced lateral vibration of a uniform cantilever beam with internal and external damping (A)..... O 89
Stresses in curved beams of noncircular center line (A)..... O 91
Thermoelastic stresses in beams (A).... O 92

BEAN, NEVIN L.
Biography..... F 138
Elected Fellow of ASME..... F 138

BEARINGS. *See also* LUBRICATION, VIBRATION
Consideration of the starting of gas lubricated bearings (A)..... D 84
Control of oil-whip frequency ratio (A) ..... Je 98
Effect of vibration on the load-carrying capacity of parallel surface thrust bearings (A)..... Je 99
Gas-lubricated bearings (A)..... F 92

BEARINGS (*continued*)
Metal-bonded-graphite bearing materials (A)..... D 77
Note on the influence of elastic compliance on sliding friction in ball bearings (A)..... Je 98
Performance of elastic, centrally pivoted, sector, thrust-bearing pads—Part 1 (A)..... D 84
Perturbation solutions for gas-lubricating films (A)..... D 85
Recent improvements in load capacity of large-steam-turbine thrust bearings (A).....Ap 104
Solution of Reynolds equation for arbitrarily loaded journal bearings (A).... D 83
Study of the stability of externally pressurized gas bearings (A)..... O 88
Symposium on load-carrying capacity of bearings.....My 126
Theoretical and experimental analysis of hydrostatic thrust bearings (A).....Mr 103
Theory of lubrication with turbulent flow and its application to slider bearings (A)..... F 113
Turbine bearing design..... F 82

BEAUBIEN, S. J.
Gear and bearing lubrication in extreme environments with polyphenyl ethers (A)..... D 84

BECK, J. V.
Thermal study of composite heat sinks (A)..... Ag 83

BECKER, HERBERT
Photoelastic model engineering..... Jl 43

BECKER, S. J.
Analysis of the yielded compound cylinder (A)..... S 91
Theory of the ideal design of a compound vessel (A).....Ap 103

BECKER, WILLIAM OTTO
Obituary.....Ap 151

BECKJORD, E. S.
Hydraulic instability in a natural circulation loop with net stream generation at 1000 psia (A)..... N 99

BECKMANN, RUDOLF ROBERT
Obituary..... N 138

BELLANTONI, J. F.
Viscous shear torque in floated gyroscopes (A)..... S 94

BELLAS, JOHN GEORGE
Obituary..... F 144

BELLMAN, RICHARD
Reduction of dimensionality, dynamic programming and control processes (A)..... N 107

BELLOWS. *See also* SHELLS
Effect of pressure on the bending characteristics of an actuator system (A)..... A 90

BELTING
Calendering conveyer belting (A)..... Jl 56

BENDING. *See* METAL FORMING

BENEDICT, R. P.
Response of a pressure-sensing system (A).....Ap 112
Temperature measurement in moving fluids (A)..... My 96

BENNETT, H. C.
Maintenance considerations for electric-powered industrial trucks (A).... Jl 74

BENNETT, ROY L.
Adsorption of polar organic molecules on machined metal surfaces and properties of the resulting surface films (A)..... D 85

BENOIT, ARMAND WILLIAM
Obituary..... O 141

BENSON, JAMES L.
Biography..... Ja 110
Receives Charles T. Main Award..... Ja 110

BENZ, W. G., JR.
Material selection and fabrication, main steam piping Eddystone No. 1, 1200-F and 5000 psi service (A).....Ap 105

BENZING, ROBERT J.
Solid films—lubricants for extreme environment (A)..... D 88

BENZINGER, T. H.
Sensory reception and control of temperature in man (A)..... My 91

BERG, HENNING JULIUS
Obituary.....Ag 140

BERGMAN, DONALD J.
Biography.....Ag 124
Nominated for Vice-President.....Ag 124

BERMAN, IRWIN
Expansion of thick-walled cylinders fabricated from cold bent plates (A)... O 93

BERTHIAUME, PAUL
Analog computer and its application in the rubber and plastics industry (A)..... D 87

BEVANS, J. T.
Geometric factors for radiative heat transfer through absorbing medium in Cartesian co-ordinates (A)..... My 93
Radiant heat-transfer analysis of a furnace or other combustion enclosure (A)..... N 101

BHAPPU, KAVASJI KHARSHEDJI
Obituary..... F 144

BIER, P. J.
Development of ASME Boiler and Vessel Code (D)..... Je 102

BIGELIS, FRANK L.
Obituary..... S 123

BILOUDEAU, G. G.
Stresses in thin-walled pressure vessels with ellipsoidal heads (A)..... S 92

BIOMECHANICS. *See* PROSTHETIC DEVICES

BIRKEBAK, RICHARD C.
Velocity distributions, temperature distributions, effectiveness, and heat transfer for air injected through a tangential slot into a turbulent boundary layer (A)..... N 102

BISCHEL, NYLE ALBERS
Obituary.....F 144

BJORKLUND, F. B.
Moisture migration in an aircraft cabin wall (A)..... Ag 80

BJORKLUND, I. S.
Integration of the power recovery gas turbine with fluid-bed processes (A).....Ap 102

BLACKALL, F. S., JR.
The story of engineering (BR)..... N 114

BLAKE, ALEXANDER
Analysis of buckling column spring with pivoted ends and uniform rectangular cross section (A)..... Ag 86

BLAKE, JOEL W.
Maintenance of simple-cycle natural-gas-burning gas turbines during ten years' operation in utility service (A)..... S 97

BLAND, JAY
Arc welding of a Ni-Cr-Fe (Inconel) alloy for nuclear power plants (A).... Jl 72

BLASCHKE, T. C.
Experimental verification of a design basis for positional servomechanisms (A)..... Ja 66

BLAST. *See* WAVE MECHANICS

BLAST FURNACES
Koppers blast furnace (A)..... Ja 57

BLEICH, H. H.
Dominance of shear stresses in early stages of impulsive motion of beams (A)..... F 114

BLEIMEYER, ARTHUR, JR.
Packaging and handling of precision instruments..... Ag 39

BLICKLE, T. T.
Santa Fe shock control freight car (A)...Ap 110

BLOOM, MARTIN H.
Air heater for 3000 R, 600 psia..... Ag 40

BODDIE, J. H.
Maintenance records simplified (A).... Je 100

BOETTCHER, C. A.
Some physiological effects of low-frequency, high-amplitude vibration (A)..... Jl 70

BOGDAN, J. F.
Use of textile machines as research tools (A).....My 88

BOGDANOFF, J. L.
Effect of small hub-radius change on bending frequencies of a rotating beam (A)..... O 94

BOGEMA, M.
Quadrant edge orifice—a fluid meter for low Reynolds number (A)..... F 112

BOGGS, J. H.
Heat transfer to Freon 12 near the critical state in a natural-circulation loop (A)..... F 110

BOILER AND PRESSURE VESSEL CODE OF ASME
Development of ASME Boiler and Pressure Vessel Code (D)..... Je 102
Interpretations..... Ja 119, Mr 111, Ap 120, Je 106, Ag 96, O 102
Revisions and addenda..... Ja 120, Mr 111, Ap 122, Je 107, Ag 97, O 105
SwRI reports on pressure vessel research.....My 107

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

BOILER AND PRESSURE VESSEL CODE (*continued*)
Corrosion of superheaters and reheaters of pulverized-coal-fired boilers (A) ..Ap 107
Experimental investigation of fuel additives in a supercharged boiler (A).....Ap 107
External corrosion of superheaters in boilers firing high-alkali coals (A).....Ap 108
Oil-ash corrosion of superheater alloys in a pilot-scale furnace (A)..... My 86
Water-treatment, corrosion, and internal deposit studies for Eddystone (A).....Ap 105

BOILER FURNACES
American coal characteristics and their effects on the design of steam generating units (A).....Ap 109
Boiler furnace fuel explosion survey (A).....Ap 109
Combustion of European coals in modern German steam generators (A).....Ap 109

BOILERS
Automation—boiler operation..... N 68
Code testing of large boilers—input-output or heat-loss method? (A)..... N 106
Direct method of testing heating and power boilers (A).....Ap 109
Industrial boiler design..... Mr 52
Power boiler industry—outlook for 1960..... Ja 122

BOILING. *See* FLOW OF FLUIDS, HEAT-EXCHANGE EQUIPMENT, HEAT TRANSFER

BOLEY, B. A.
On a dynamical Saint Venant principle (A)..... F 114

BOOK REVIEWS
Classics in management..... D 97
Elements of materials science..... My 99
Nature and properties of engineering materials..... My 99
The story of engineering..... N 114
Symposium on education in materials.. My 99
Vibration engineering; a practical treatise on the balancing of engines, mechanical vibration, and vibration of isolation.....Ap 116

BOOKS RECEIVED IN LIBRARY.....
Ja 118, F 122, Mr 108, Apr 117, My 100, Je 103, Jl 81, Ag 95, S 101, O 100, N 111, D 98

BOPPEL, H. L.
Automatic inspection and assembly (A)..... Je 99

BORERS. *See* MACHINE TOOLS

BORG, S. F.
Rupture instability of plane membranes and solids (A)..... S 98

BORING. *See* METAL CUTTING

BORJES, FREDERICK C.
Biography..... Ja 110
Receives Undergraduate Student Award. Ja 110

BORON, J. F.
Thermal instability in high-speed gearing (A)..... F 106

BORSOFF, V. N.
Gear and bearing lubrication in extreme environments with polyphenyl ethers (A)..... D 84

BOSCH, L. L.
Biography..... Jl 110
Elected Fellow of ASME..... Jl 110

BOSTIC, J. A.
Code testing of large boilers—input-output or heat-loss method? (A)..... N 106

BOSTROM, KARL
Productivity—the great commitment... D 60

BOULGER, FRANCIS W.
Plastic working (a review of the literature for 1959)..... S 70

BOUNDARY LAYER. *See also* DIFFUSERS, PUMPS—JET
Boundary layer flow (a literature review)..... Ag 49
Laminar boundary layers in oscillatory flow (A)..... My 89
Remarks on the temperature step functions on a flat plate in forced convection (A)..... My 92
Turbulent boundary layer at a plane of symmetry in a three-dimensional flow (A)..... My 89

BOUTON, GEORGE INNES
Obituary.....Mr 138

BOWERS, WILLIAM E.
New instruments improve depth accuracy (A)..... D 87

BOYCE, FRANK GEORGE
Obituary.....Ap 151

BOYD, JOHN
Receives 1960 ASLE National Award...Mr 119

BOYER, G. C.
Internal-combustion engines in steam power stations (A)..... Jl 75

BRADFORD, L. J.
Grease lubrication studies with plain journal bearings (A)..... D 83

BRADSHAW, F. F.
Developing managerial abilities..... Ja 29

BRAKES. *See* AIR TRANSPORT

BRANSFORD, E. O.
Design control of overcompression in rotary-vane compressors (A)..... Ja 69

BRASS, E. A.
Two-stage planetary arrangements for the 15:1 turboprop reduction gear (A)..... S 90

BRATH, P. W.
Automated testing of railway freight brake control values (A)..... Jl 77

BRAZING
Radiant brazing process (A)..... Je 80

BREWER, G. D.
Structural weight approximation for a bell-nozzle divergent section (A).....Ap 113

BRIEFING THE RECORD.....
.....Ja 51, F 86, Mr 78, Ap 86, My 70, Je 74, Jl 53, Ag 62, S 75, O 69, N 80, D 64

BRIGGS, C. W.
Studies of the design of steel castings and steel weldments as related to methods of their manufacture (A).... Ag 85

BRIGGS, G. E.
Accomplishments in human operator simulation (A)..... Ag 79

BRINGHURST, GEORGE KENDRICK
Obituary..... D 131

BRINSON, L. D.
System stability analysis including governor, engine, generator, and tie-line impedance (A)..... Ag 87

BRKICH, ALEXANDER
Development of floating ring type stuffing boxes for Eddystone boiler feed pumps (A).....Ap 106

BROCK, LOIS W.
Plastics developments; review of the literature for the year 1958–1959..... Mr 65

BRONK, DETLEV W.
Receives honorary DE degree..... D 103

BROOKS, FRED A.
Receives John Deere Gold Medal.....Ag 105
Receives Cyrus Hall McCormick Gold Medal..... S 105

BROOKS, R. C.
How economics influenced the design of a 15,000-psi blowout preventer (A)..... D 89

BROUHA, LUCIEN
Heat stress and the industrial worker... Je 57

BROWE, ERNST L.
Obituary..... N 138

BROWN, B. B.
Experimental verification of a design basis for positional servomechanisms (A)..... Ja 66

BROWN, CLINTON BLEECKER
Obituary..... N 138

BROWN, E. A.
Pressure oscillations in a water-cooled nuclear reactor induced by water-hammer waves (A)..... Je 97

BROWN, E. I.
Hydraulics: standard components..... My 51

BROWN, EDWIN HARRISON
Obituary..... Je 130

BROWN, J. L.
Textile waste treatment—what to do about it (A)..... Je 100

BROWN, N. H., JR.
Collapsible containers..... D 54

BROWN, R. O.
Turbine-exhaust losses (A)..... N 106

BROWN, R. A. S.
Thermal transfer in turbulent gas streams. Effect of turbulence on local transport from spheres (A)..... O 93

BROWN, R. N.
Torsional vibration problem as associated with synchronous motor driven machines (A)..... F 109

BROWN, R. R.
Gas-turbine reliability control procedures (A)..... My 89

BRUCE, D. F.
Gas-turbine electric plant in Venezuela.. S 58
25,000 kw Mene Grande gas turbine installation (A)..... Ja 68

BRUNEAU, P. J.
Jet-engine trend analysis (A)..... My 89

BRYANT, ROBERT ENOCH
Obituary.....Ap 152

BRYERS, R. W.
Experimental investigation of fuel additives in a supercharged boiler (A).....Ap 107

BUCHI, ALFRED J.
Obituary..... F 144

BUCKETS. *See* TURBOMACHINERY

BUCKLING
Analysis of buckling column spring with pivoted ends and uniform rectangular cross section (A)..... Ag 86
Buckling of circular cones under axial compression (A)..... O 90
Method for investigating certain eigenvalue problems of the buckling and vibration of plates (A)..... O 92
Shear buckling of bars (A).....Ap 114

BUCY, R. S.
New results in linear filtering and prediction theory (A)..... N 108

BUHL, H. R.
Understanding the creative engineer (A)..... Ag 86

BULK MATERIALS. *See* MATERIALS HANDLING

BUND, R. W.
Drawability of sheet aluminum alloy 5457 (A)..... Mr 96

BURGE, H. L.
Experimental sodium vapor power plant (A)..... N 109

BURGESS, B. F., JR.
Effect of temperature on tolerance to acceleration..... Je 62

BURGGRAF, G.
Film cooling with multiple slots and louvers (A)..... N 102

BURNERS
Eight years' experience with automatic burner controls (A)..... N 106

BURNETT, E. C.
Tensile and short-time creep properties of N-155 alloy sheets (A)..... Ja 70

BURRIER, H. E.
Selection of the hydraulic turbines for the Mammoth Pool Project (A)..... Je 96

BURSTING TESTS
Burst strengths and deformations of welded composite turbine wheels as related to weld quality and plasticity calculations (A)..... Ja 74

BURTON, C. L.
Application of model studies to industrial gas-flow systems (A).....Ap 110

BURTT, NELSON WALTER
Obituary.....Jl 121

BUSCEMI, V. P.
How to double your income—the design engineer's viewpoint (A)..... Ja 134

BYRNE, W. J.
Safety in materials handling—an engineering approach..... Jl 30

BYRNE, WILLIAM H.
Biography.....Ag 123
Nominated for President.....Ag 122

C

CABBLE, G. M., JR.
Understanding wheel-rail adhesion (A).. Jl 78

CACIOPPO, A. J.
Possibilities for simulation of human dynamics and perception (A)..... Ag 78

CAIN, CARL, JR.
Corrosion of superheaters and reheaters of pulverized-coal-fired boilers (A)....Ap 107

CALDWELL, JAMES H.
Maintenance of turbocharged engines including large and medium sized units in gas transmission, petrochemical and gas processing plants (A)..... D 90

CALENDERING. *See* BELTING.

CALISE, V. J.
Research problems relating to production and quality control of ultrapure feedwater for Eddystone station (A) .....F 106, Ap 104

CAMPBELL, CLARENCE B.
Receives Gold Medal of the Newcomen Society.....Mr 119

CAMPBELL, J. S.
Metal cutting (a review of the literature for 1959)..... S 68

CANNAN, JAMES T.
Fuels for Argentina (A)..... D 92

CAPPEL, K. L.
Temperature regulation in a bio-satellite (A)..... O 87

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

CARLISS, O. S.
Academic preparation for engineers in management (A) ... Mr 98

CARLSON, ROBERT A.
Wall temperature and heat flux measurement in a round tube (A) ... O 86

CARMAN, E. P.
Direct method of testing heating and power boilers (A) ... Ap 109

CARMODY, E. O.
Training on a process simulator (A) ... Mr 101

CARNAVOS, T. C.
Thermal-contact resistance in finned tubing (A) ... My 91

CARPENTER, GEORGE DEWEY
Obituary ... Ap 152

CARRIER, G. F.
On the annular damper for a freely processing gyroscope (A) ... F 114

CARVIN, FRANK DANA
Obituary ... Jl 122

CASCADES. *See* COMPRESSORS

CASE, E. H.
Let's examine the engineering curriculum ... O 63

CASSELLS, C. W.
Maintenance of bulk material conveying equipment (A) ... Jl 74

CAST IRON. *See* WELDING

CASTINGS
Studies of the design of steel castings and steel weldments as related to methods of their manufacture (A) ... Ag 85

CATAPULTS. *See* AIRPLANES

CAUGHEY, R. H.
Material selection and fabrication, main steam piping Eddystone No. 1, 1200-F and 5000-psi service (A) ... Ap 105

CAUGHEY, T. K.
Classical normal modes in damped linear dynamic systems (A) ... F 114
Random excitation of a loaded nonlinear string (A) ... O 93
Sinusoidal excitation of a system with bilinear hysteresis (A) ... O 88

CAVITATION
Cavitation in centrifugal pumps with liquids other than water (A) ... Mr 98
Correlation of cavitation inception data for centrifugal pump operating in water and in sodium-potassium alloy (NaK) (A) ... F 108
Effect of air content on the occurrence of cavitation (A) ... Je 96
Experimental study of cavitation in a mixed flow pump impeller (A) ... Je 96
Liquid-metal cavitation—problems and desired research (A) ... Je 97
Observation of cavitation in a low hub-tip ratio axial-flow pump (A) ... Je 97
On cathodic protection in cavitation damage (A) ... F 108
Selection of length and head scales for cavitation tests (A) ... F 108
Some corrosion effects in accelerated cavitation damage (A) ... F 108

CERAMICS. *See also* FOUNDRY PRACTICE
Ceramic-fiber metal combinations (A) ... Jl 56
Glass-ceramics ... O 65

CERNEA, ROLAND EMANUEL
Obituary ... Ap 152

CESS, R. D.
Heat transfer to laminar flow across a flat plate with a nonsteady surface temperature (A) ... N 102

CHADWICK, W. L.
Control of air pollution from oil-burning power plants ... Ap 63, Ag 93

CHAINS. *See* KINEMATICS

CHAMBADAL, P.
Experiences with gas turbines in French power stations (A) ... Je 91

CHAMBERLAIN, R. G.
Numerical control developments (A) ... Je 99

CHANG, C. C.
Elastic instability of rectangular sandwich panel of orthotropic core with different face thicknesses and materials (A) ... O 92

CHANG, S. S.
Comparisons between the shearing properties of alpha-brass as derived from the cutting process and from static and impact torsion tests (A) ... Ja 71

CHANG, S. S. L.
Kinetic Lyapunov function for stability analysis of nonlinear control systems (A) ... N 107

CHAO, CHI-CHANG
Dynamical response of an elastic half-space to tangential surface loadings (A) ... O 93

CHAPMAN, E. C.
Eddystone research story (A) ... Ap 104

CHAVE, C. T.
Advanced pressurized-water-reactor electric generating station (A) ... Mr 99

CHEN, MICHAEL MING
Analytical study of laminar film condensation. Part 1. Flat plates (A) ... N 104
Part 2. Single and multiple horizontal tubes (A) ... N 105

CHENG, D. H.
Junction problem of solid-slotted cylindrical shells (A) ... S 98

CHIN, J. H.
Film cooling with multiple slots and louvers (A) ... N 102

CHITTENDEN, W. A.
Heavy-water-moderated nuclear power plants (A) ... Mr 100

CHRIST, FRED C.
Correlation of a new design concept for high horsepower reciprocating pumps with test results (A) ... D 93

CHYLE, JOHN J.
Welding processes ... My 43

CISLER, WALKER L.
ASME looks to the future ... Ag 36
Engineer in international affairs ... F 54
Introducing Walker Cisler (Ed) ... Ja 27
Receives American Institute of Consulting Engineers Award of Merit ... D 103

CLADDING. *See* METAL COATING

CLARK, J. A.
Pool boiling in an accelerating system (A) ... N 103

CLIFT, WILLIAM D.
Recent developments in field gas handling facilities (A) ... D 91

CLUTCHES
Positive-acceleration clutch (A) ... F 107

CLYMER, A. B.
Accomplishments in human simulation (A) ... Ag 79
Possibilities for human simulation (A) ... S 95

COAL. *See also* GAS TURBINES
American coal characteristics and their effects on the design of steam generating units (A) ... Ap 109
Coal productivity (A) ... N 83
Sulfur reduction in bituminous coals (A) ... Je 81

COAL, ASH
Relationship of coal-ash viscosity to chemical composition (A) ... F 106

COAL HANDLING
Checking coal stoppages (A) ... F 90

COANT, P. M.
Laboratory gas engine lubricant study (A) ... Jl 76

COCHRANE, EDWARD LULL
Obituary ... My 137

COCKRELL, C. M.
Grand Isle Sulphur Mine heating plant and underwater sulphur line design (A) ... Ap 103

COFFIN, L. F., JR.
Stability of metals under cyclic plastic strain (A) ... Ja 73

COHEN, M. J.
Two-dimensional gas jets (A) ... O 92

COIT, R. L.
Flash evaporators ... Ap 84

COLLINS, G. F.
Climatic considerations in the design of air-cooled heat exchangers (A) ... My 93

COLUMBIUM. *See* STEEL ALLOYS

COLUMNS. *See also* SPRINGS
On the elastic bending of columns due to dynamic axial forces including effect of axial inertia (A) ... F 114

COLVIN, FRED HERBERT
65-year member honored ... Mr 128

COMBUSTION
Concept of combustion control for firing two solid fuels (A) ... D 82
Influence of volatile matter on the combustion of pulverized coal (A) ... D 82

COMMUNICATIONS. *See also* LIGHT
30 million words a second (A) ... Ja 58

COMPRESSORS
Automatic control system for a gas pipeline compressor station (A) ... D 88
Correlation of turbocompressor performance with various gases (A) ... Je 98
Design application of engine-driven balanced-opposed gas compressors for pipeline and process installations (A) ... D 88
Design control of overcompression in rotary-vane compressors (A) ... Ja 69
Design of semipermanent gas compressor stations (A) ... D 90
Glass-reinforced plastic as an aviation gas-turbine compressor-housing material (A) ... S 98
Incidence and deviation-angle correlations for compressor cascades (A) ... My 89
Practical stage performance correlations for centrifugal compressors (A) ... Je 98
Supersonic diffuser for radial and mixed flow compressors (A) ... Je 97

COMPUTERS. *See also* AUTOMATIC CONTROL, PHYSIOLOGY
Analog computer and its application in the rubber and plastics industry (A) ... D 87
Engineering application of digital computers ... Ja 48
Harvard computing machine parses Russian sentence ... Ap 125
Industrial-process computer (A) ... My 75
Largest computer yet (A) ... A 80
Machines duplicate human thinking (A) ... Ag 70
Magnet-twistor memory (A) ... Mr 87
"Recomp II" computer (A) ... Ja 59
Requirements for a hybrid analog-digital computer (A) ... Ja 66
System expansion-fuel costs versus capital charges ... N 64, (correction) D 96

CONCRETE
Epoxy-resin concrete repairs (A) ... D 77
Fish scales as additives for concrete (A) ... Ja 58

CONDENSATION
Analytical study of laminar film condensation.
Part I. Flat plates (A) ... N 104
Part 2. Single and multiple horizontal tubes (A) ... N 105

CONDENSERS. *See* STEAM CONDENSERS

CONGELLIERE, J. T.
Experimental sodium vapor power plant (A) ... N 109

CONTAINERS. *See* SHIPPING CONTAINERS

CONTROL. *See* AUTOMATIC CONTROL, HUMAN ENGINEERING, RELIABILITY CONTROL, REMOTE CONTROL, SPACE VEHICLES, VALVES

CONVECTION. *See* HEAT TRANSFER

CONVEYERS. *See* MATERIALS HANDLING

CONWAY, H. D.
Approximate analysis of certain boundary-value problems (A) ... Mr 106
Method for investigating certain eigenvalue problems of the buckling and vibration of plates (A) ... O 92

COOK, J. E.
Development experience with prototype gas turbines (A) ... Je 92

COOK, N. H.
Free machining steel, Part I—Tool-life characteristics of resulfurized steel (A) ... Jl 68
Free machining steel, Part II—Tool-life characteristics of leaded steel (A) ... Jl 68

COOK, THOMAS JOHNSON
Obituary ... N 138

COOKE, MORRIS LLEWELLYN
Obituary ... Je 131

COOLING SYSTEMS. *See also* AIRPLANE ENGINES
Film cooling with multiple slots and louvers (A) ... N 102
Heat transfer from humid air to fin and tube extended surface cooling coils (A) ... O 86
Velocity distributions, temperature distributions, effectiveness, and heat transfer for air injected through a tangential slot into a turbulent boundary layer (A) ... N 102

COOPER, R. A.
Barometric altitude—the problem, solution, and altimeter design (A) ... S 93

COOPER, S.
Assessment of the value of theory in predicting gas-bearing performance (A) ... D 83

COPIERS. *See* PHOTOGRAPHY

COPLAND, G. V.
Development of a continuous fluid density measuring device (A) ... Ag 84

COPP, RALPH
Obituary ... Je 131

CORBY, JEROME BAUDUY
Obituary ... Mr 138

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

CORING PHENOMENA. *See* FLOW OF FLUIDS

CORNET, I.
Study of theories of fracture under combined stresses (A) ... Jl 73

CORNISH, J. J.
Fixed wing STOL aircraft with distributed suction BLC for extended latitude (A) ... Ag 78

CORROSION. *See also* BOILER CORROSION, CAVITATION
Jeep protected against corrosion (A) .... Je 77
New theory for rusting of iron (A) ..... S 78

COSGRIFF, R. L.
Accomplishments in human operator simulation (A) ... Ag 79

COST ACCOUNTING
Factor management and labor controls (A) ... Ag 88

COST ANALYSIS
Amortization and determination of savings of materials-handling features (A) ... Mr 106
System expansion—fuel costs versus capital charges ..... N 64, (correction) D 96

COTTON, K. C.
Throat tap nozzles used for accurate flow measurements (A) ... My 96

COTTRELL, JOSEPH LLOYD
Obituary ... My 137

COULTAS, T. A.
Experimental sodium vapor power plant (A) ... N 109

COULTER, N. A., JR.
Simulation of human physiological systems (A) ... S 95

COUTINHO, J. DES.
Distribution of service lives of hydraulic pumps (A) ... Ap 107

COWPER, G. R.
Elastoplastic thick-walled sphere subjected to a radial temperature gradient (A) ... O 91

COX, ABRAHAM BEEKMAN
Obituary ... F 144

COXE, E. F.
Flash evaporators ... Ap 84

COYKENDALL, L. H.
Control of air pollution from oil-burning power plants (D) ... Ag 92

CRACK PROPAGATION. *See* METAL TESTING

CRACKS. *See* STRESSES AND STRAINS

CRANE, E. V.
Metal-forming under electronic sequencing (A) ... Je 99

CRARY, SELDON B.
Receives William M. Habirshaw Award ... D 103

CRAWFORD, B. M.
Task performance with the CRL model 8 master-slave manipulator as a function of color-coding, distance, and practice (A) ... Ag 85

CRAWFORD, WILLIAM ELON
Obituary ... Ja 138

CRAWLEY, GEORGE EDWIN
Obituary ... S 123

CREATIVITY
Engineering management as related to profit and creativity (A) ... F 133
"How to increase your creative output—a guide for the engineer and scientist," recently published ... Ja 123
Understanding the creative engineer (A) ... Ag 86

CREDE, CHARLES E.
Biography ... Ja 107
Receives ASME Machine Design Award. Ja 107
Vibration engineering; a practical treatise on the balancing of engines, mechanical vibration, and vibration of isolation (BR) ... Ap 116

CREEL, R. L.
Navy approach to the development of airframe structural design control requirements (A) ... S 92

CREHAN, W. J.
Chemical nickel plating on a large scale by the Kanigen process (A) ... Mr 105

CROCKER, ALLEN S.
Obituary ... N 138

CROSBY, D. W.
Turbine propeller power plant airline maintenance (A) ... Ja 68

CROSBY, P. A.
Rotative power for large antennas (A) ... My 87

CROSS, ROBERT AMES
Obituary ... Ja 138

CROSSETT, J. W.
Materials below −100 F (D) ... Ag 94

CROSSLAND, B.
Strength of thick cylinders subjected to repeated internal pressure (A) ... Ap 102

CRYOGENICS. *See* LOW-TEMPERATURE MATERIALS

CRYOSTATS. *See* LOW-TEMPERATURE RESEARCH

CUSHIONING. *See* RAILROAD CARS

CUTTING FLUIDS. *See* METAL CUTTING

CYLINDERS. *See also* PLASTICITY
Analysis of the yielded compound cylinder (A) ... S 91
Expansion of thick-walled cylinders fabricated from cold bent plates (A) ... O 93
Transient and residual thermal stresses in an elastic-plastic cylinder (A) ... S 98

CYPHERS, J. A.
Heat transfer and pressure drop in an annular gap with surface spoilers (A) ... N 101

CYWIN, ALLEN
Fresh water from salt water ... O 57

D

DADLEY, JAMES WALTER
Obituary ... F 144

DAHL, A. I.
Thermal-conductivity studies with the Powell method (A) ... O 86

DAHLQUIST, CARL E.
Technical personnel—evaluation and development (D) ... F 116

DAILY, J. W.
Roughness effects on frictional resistance of enclosed rotating disks (A) .... F 109

DALLENBACH, F.
Supersonic diffuser for radial and mixed flow compressors (A) ... Je 97

DAMPING. *See* DYNAMICS, GYROSCOPES, VIBRATION

DAMS
Africa's Kariba Dam ... O 71

DANEL, PIERRE
Selection of length and head scales for cavitation tests (A) ... F 108

DANIEL, ISAAC M.
Stress analysis of a cylindrical shell-ring stiffener (A) ... D 90

DANKER, F. R.
How to double your income—the sales engineer's viewpoint (A) ... Ja 133

DARBY, JOHN
Obituary ... Mr 138

DARLING, L. A.
Low-level economizer: a design study (D) ... N 110

DATA PROCESSING
Vacuum-drive tape for electronic-data-processing systems (A) ... Mr 89

DATSKO, J.
Correlation of bendability of materials with their tensile properties (A) ... Ja 70

DAUBERT, H. C.
Determination of the in-flight vertical (A) ... S 95

DAVIDSON, J. D.
Automation—turbine generators ... N 72

DAVIDSON, KENNETH S. M.
Receives new award of SNAME posthumously ... Ja 125

DAVIDSON, WARD FOLLET
Obituary ... O 141

DAVIS, E. A.
Relaxation of a cylinder on a rigid shaft (A) ... Ap 113

DAVIS, FRANK LAWRENCE, JR.
Obituary ... N 139

DAVIS, FRENCH CLINTON
Obituary ... F 144

DAWLEY, CLARENCE ALBERT
Obituary ... Ag 140

DEAN, R. C., JR.
Rotating wakes in vaneless diffusers (A) ... F 109

DEARASAUGH, JOHN PAUL
Obituary ... Mr 138

DEBIASE, R. G.
Determination of cutter trajectories for contoured turbine buckets (A) ... Ja 71

DECKER, H. L.
Progress in railway mechanical engineering 1958–1959 (D) ... Jl 80

DEEDS, EDWARD ANDREW
Obituary ... O 141

DE FELICE, J., JR.
Heavy-water-moderated nuclear power plants (A) ... Mr 100

DEFORMATION. *See also* BURSTING TESTS, METAL CUTTING
Effect of shear deformations on the bending of rectangular plates (A) ... Ap 114
Modeling of large transient elastic and plastic deformations of structures subjected to blast loading (A) ... O 90
Stresses in the plastic range around a normally loaded circular hole in an infinite sheet (A) ... Je 90

DELAUNE, HERBERT LAURAND
Obituary ... O 141

DENAVIT, J.
Approximate synthesis of spatial linkages (A) ... F 113

DE VILBLISS, T. E.
Mobile reflectoscope inspection of railway car axles under rolling equipment on the Chesapeake and Ohio Railway Company (A) ... Mr 103

DEWEY, ELLIS LA VERNE
Obituary ... N 139

DEWEZ, F. J., JR.
Study of the defects that originate and develop in the treads of railroad wheels during service (A) ... Jl 77

DEWITT, E. J.
How to present an idea ... O 50

DEXTER, GREGORY M.
Model law for professional engineers (C) ... Mr 108

DIAMONDS
Diamond-making process revealed (A) .. Ja 53

DIBELIUS, N. R.
Smoke reduction in residual-fuel-burning gas-turbine combustion system (A) ... Je 93

DICK, GEORGE MCKINSTRY
Elected president of The Engineering Institute of Canada ... Ap 127
Receives honorary DSc degree ... D 103

DICKINSON, R. W.
Operating experience and advanced designs of sodium-graphite reactors (A) ... Mr 99

DIE, ROY R.
Recent developments in field gas-handling facilities (A) ... D 91

DIE CASTING
Ceramic-shell investment casting (A) ... O 72

DIEHL, E. K.
External corrosion of superheaters in boilers firing high-alkali coals (A) ... Ap 108

DIESEL ENGINES. *See also* HEAT-EXCHANGE EQUIPMENT, LUBRICANTS, PISTON RINGS, SUPERCHARGERS
Economics of engine power development of the Alco 251 engine (A) ... Jl 76
Marine diesel engine develops 2650 bhp per cylinder (A) ... F 102
3000 hp per cylinder (A) ... Je 89

DIFFUSERS
High-efficiency flow diffusion by means of suction boundary-layer control (A) ... S 97
Rotating wakes in vaneless diffusers (A) ... F 109
Supersonic diffuser for radial and mixed flow compressors (A) ... Je 97

DISKS. *See also* HEAT TRANSFER, ROTORS
Extensional vibrations and waves in a circular disk and a semi-infinite plate (A) ... S 98

DISTRIBUTION CONTROL
Feedback...consumer to factory ... Ja 41

DITTMAN, GERALD CARL
Obituary ... Ag 140

DIVER, MORTIMER LEVERING
Obituary ... Je 131

DOAN, THEODORE HEBERTON, JR.
Obituary ... N 139

DOLLISON, W. W.
New developments in surface and subsurface storm chokes (A) ... D 90

DONELY, PHILIP
Short-field airliners ... O 53

DOTSON, C. L.
Nickel-chromium-iron alloy (Inconel) forgings for nuclear-reactor systems—a summary of forging techniques and mechanical properties (A) ... Jl 72

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

DOVE, R. C.
Obtaining stress-% compression diagrams of foamed plastics at high rates of compression (A) ..... D 86

DOWLING, LAWRENCE SARSFIELD
Obituary ..... O 141

DOYLE, WILLIAM LEONARD HUNT
Obituary ..... Je 131

DRAKE, C. WILLIAM
New dimension in materials handling—ideas, not hardware ..... Je 71

DRAPER, CHARLES S.
Receives the Magellanic Premium ..... Ja 125
To receive Howard N. Potts Medal ..... S 105

DRAPER, E. H.
Biography ..... Ag 125
Nominated for Vice-President ..... Ag 125

DREIER, DONALD W.
Computer simulation of marine terminal and pipeline operations of the Trans-Arabian Pipe Line Company (A) ..... D 89

DREW, H. R.
Development of a prototype for a large electrodialysis cell for treating brackish waters (A) ..... S 91

DREW, THOMAS B.
Biography ..... Ja 105
Honorary Member of ASME ..... Ja 105

DRIVES. *See also* GEARS
Harmonic drive utilizing a flexing-spline element (A) ..... Jl 58
Variable-ratio transmission (A) ..... O 75

DRUTOWSKI, R. C.
Volume of stressed material involved in the rolling of a ball (A) ..... D 84

DRYDEN, HUGH L.
Exploration of space ..... N 53
Receives Elliott Cresson Medal ..... O 108

DUCTED PROPELLERS. *See* AIR PROPELLERS

DUDLEY, H. L.
Modular design (A) ..... Ag 82

DUHNE, C.
Coefficients of discharge of a quadrant-type concentric orifice meter, with flange, radius, and corner taps (A) .... Ja 72

DUNCAN, WILLIAM MILLEN
Obituary ..... S 124

DUNKIN, J. W.
Elastic half plane subjected to surface tractions with random magnitude or separation (A) ..... O 95

DUNNING, J. R.
Science and technology are liberal arts (A) ..... Je 108

DUPORT, JACQUES
Selection of length and head scales for cavitation tests (A) ..... F 108

DURAND, F. L.
Experimental study of the effects of strong progressive sound fields on free-convection heat transfer from a horizontal cylinder (A) ..... N 99

DUST COLLECTORS
Use of transparent scale models in the design of dust-collector and gas duct systems for coal-burning electric-generating stations (A) ..... F 111

DUTTON, RICHARD A.
Experimental investigation of the suitability of JP-4 fuel for the regenerative cooling of a hypersonic ramjet engine (A) ..... N 104

DUZY, A. F.
American coal characteristics and their effects on the design of steam generating units (A) ..... Ap 109

DYGERT, J. C.
Integration of the power recovery gas turbine with fluid-bed processes (A) .. Ap 102

DYNAMICS
Classical normal modes in damped linear dynamic systems (A) ..... F 114
Dynamical response of an elastic half-space to tangential surface loadings (A) ..... O 93
On a dynamical Saint Venant principle (A) ..... F 114

DYNAMOMETERS
Milling torquemeter of planetary-gear design (A) ..... Jl 70

E

EAGAN, T. E.
Materials below −100 F (D) ..... Ag 94

EAGLE, R. S.
Pressure-vessel overtemperature hazards (A) ..... Ap 102

EARNHARDT, REID
Obituary ..... My 137

EARTH SATELLITES
Exploration of space ..... N 53
Temperature control system for the Atlas Able-4 lunar satellite (A) ..... S 94

EARY, D. F.
Microanalysis of steel-rule cutting (A) ... Mr 97

EATON, PAUL BURNS
Obituary ..... Jl 122

EBCIOGLU, I. K.
Elastic instability of rectangular sandwich panel of orthotropic core with different face thicknesses and materials (A) ..... O 92

EBERLE, F.
Fabrication and annealing factors affecting grain size of 18Cr8Ni-Ti superheater materials in steam boilers (A) ..... Mr 102

EBERSOLD, R. C.
Positive-acceleration clutch (A) ..... F 107

ECKEL, J. F.
Graphitization failures in piping (D) .... F 118

ECKERT, ARTHUR CHARLES
Obituary ..... Ja 138

ECKERT, E. R. G.
Experimental study of the effects of nonuniform wall temperature on heat transfer in laminar and turbulent axisymmetric flow along a cylinder (A) ..... My 92
Laminar skin friction and heat transfer on flat plates with wedge-shaped grooves in flow direction (A) ..... F 109
Review of heat-transfer literature, 1959 .. Ag 47
Velocity distributions, temperature distributions, effectiveness, and heat transfer for air injected through a tangential slot into a turbulent boundary layer (A) ..... N 102

ECONOMICS. *See* AUTOMATIC CONTROL

ECONOMIZERS. *See* HEAT-EXCHANGE EQUIPMENT

EDITORIALS
Design engineering ..... My 35
Economic nuclear power? ..... Ap 57
The first five years ..... S 53
For the 50th time (the Mechanical Catalog) ..... O 41
A giant step; the EJC *Engineer* ..... F 53
International co-operation ..... F 53
Introducing Walker Cisler ..... Ja 27
It's everybody's atom ..... D 37
The meeting and the show ..... N 45
A memorable day? ..... Ag 33
Nuclear milestone ..... Je 45
Teaching tomorrow's engineers ..... Mr 45
That time lag ..... Jl 27

EDUCATION
Academic preparation for engineers in management (A) ..... Mr 98
ASEE and industry explore areas of responsibility ..... N 132
ASME members asked to act in ECPD guidance program ..... Mr 126
ASME Woman's Auxiliary awards aid engineering students ..... S 119
Business education for engineers ..... Mr 63
The complete engineer ..... Ag 133
Electronic student desk (A) ..... N 116
An engineer looks at education ..... Ap 58
Fellowships and scholarships of new Ford Foundation program ..... My 117
Fourth Biennial ASME-AIC Engineering Education Conference held in Montreal ..... D 118
Fourth Engineering Technician Survey of enrollments and graduates ..... F 130
Freeman Fellowship for academic year 1961–1962 ..... D 121
Freeman Fellowship for study or research in hydraulics ..... Ja 130
Let's examine the engineering curriculum ..... O 63
National Defense Graduate Fellowships ..... My 115
National Science Foundation fellowships and scholarships ..... D 106
New horizons for experimental investigation in the mechanical engineering curriculum ..... My 127
News and notes ..... My 116, Je 109, Jl 89, N 116, D 105
Problem areas in engineering education explored (A) ..... Mr 129
Science and technology are liberal arts (A) ..... Je 108
Teaching tomorrow's engineers (Ed) .... Mr 45
Tomorrow's engineering education ..... My 66
We can conquer interplanetary space with materials, energy, technology, and men....but we must have more qualified young engineers entering the profession ..... Ap 128

EGGLESTON, D. M.
Critical comparison of metal-cutting theories with new experimental data (A) ..... Ja 71

EHRICKE, KRAFFT A.
Systems analysis of fast manned flights to Venus and Mars (A) ..... S 93

EICHHORN, E.
Experimental study of the effects of nonuniform wall temperature on heat transfer in laminar and turbulent axisymmetric flow along a cylinder (A) ..... My 92

EISENSTADT, MELVIN
Solar air conditioning with an ammonia-water absorption refrigeration system (A) ..... Ap 111

EISLER, M.
Economics of the steam-gas turbine exhaust-fired cycle for medium-size utilities (A) ..... Je 93

ELASTICITY. *See also* MATHEMATICS
Contact problem for viscoelastic bodies (A) ..... Je 90
Elastic half plane subjected to surface tractions with random magnitude or separation (A) ..... O 95
On Saint Venant's principle; elastic shells and plates (A) ..... O 89
On the Airy stress functions of plane dislocation problems (A) ..... O 89
Stress distributions analyzed in bispherical co-ordinates (A) ..... O 94

ELASTOMERS. *See* PLASTICS, STRUCTURES

ELECTRIC ANALOGY
Analog-digital differential analyzer (A) .. Ag 69

ELECTRIC MACHINERY
Improved 5-kw generator (A) ..... Ap 87

ELECTRIC MOTORS
Dynamic stresses in traction motors resulting from defective gearing (A) .... Mr 104

ELECTRIC SYSTEMS. *See* SPACE VEHICLES

ELECTRICAL EQUIPMENT
Flexi-core transformers (A) ..... Ag 66

ELECTRICAL INSULATION
Alumina potting compounds for electrical equipment (A) ..... Mr 91
Synthetic-mica "paper" (A) ..... Ag 73

ELECTRICAL PRECIPITATORS
Application of model studies to industrial gas-flow systems (A) ..... Ap 110
Electrostatic precipitators .. My 54, (D) S 100
Precipitator data (A) ..... S 81

ELECTROLYSIS. *See* METAL CUTTING

ELECTRONIC SEQUENCING. *See* AUTOMATIC CONTROL

ELECTRONICS. *See* PLANT PROTECTION

EL KOUH, A. F.
Experimental determination of statistical properties of two-phase turbulent motion (A) ..... My 90

ELROD, HAROLD
Study of the stability of externally pressurized gas bearings (A) ..... O 88

ELWELL, R. C.
Theoretical and experimental analysis of hydrostatic thrust bearings (A) .... Mr 103

EMERSON, CHERRY LOGAN
Obituary ..... F 144

EMERSON, L. P.
Coefficients of discharge of a quadrant-type concentric orifice meter, with flange, radius, and corner taps (A) .... Ja 72

EMERSON, R. W.
Graphitization failures in piping (D) .... F 117

EMPLOYMENT
Columbia and Cornell placement offices differ on outlook for 1960 graduates ... Ap 126
EJC Employment Conditions Committee survey available ..... Jl 86
Technical personnel—evaluation and development (D) ..... F 116
Tyro tycoon—that's a young engineer .. My 115

ENGBLOM, ALEXANDER NATANAEL
Obituary ..... Jl 122

ENGELMAN, WILLIAM HENRY
Obituary ..... Je 131

ENGINE MOUNTS. *See* MOTOR VEHICLES

ENGINEERING. *See also* COMPUTERS, MANAGEMENT, RESEARCH
Beyond the captured territory ..... S 57
Decontrol the engineer? ..... My 36
How to control research and engineering ..... Je 46
Modernized engineering organization (A) ..... Mr 98

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

ENGINEERING (*continued*)
The story of engineering (BR)..... N 114
That time lag (Ed)..... Jl 27

ENGINEERING MANAGEMENT CONFERENCE, 1960..... N 123

ENGINEERING PROFESSION
The call of an engineer..... Je 125
The engineer and the law..... Jl 28
The first five years (Ed)..... S 53
Model law for professional engineers (C)..... Mr 108

ENGINEERING PUBLICATIONS
A giant step; the EJC *Engineer* (Ed)..... F 53
New Journal, *Technology and Culture*..... F 127
News and notes..... Jl 88
Nuclear Engineering Abstracts..... D 108
"People to People" program needs technical journals..... Jl 86

ENGINEERING SOCIETIES
Meetings of other Societies..... Ja 126, F 130, Mr 121, Ap 125, My 110, Je 110, Jl 87, Ag 105, S 108, O 109, N 118, D 108

ENGINEERING SOCIETIES PERSONNEL SERVICE, INC.
Announces a new service to employers and employees..... Ja 135
Positions available..... Ja 136, F 140, Mr 134, Ap 150, My 134, Je 128, Jl 120, Ag 138, S 122, O 140, N 135, D 127

ENGINEERS
Are engineers interested in engineering? (C)..... Ap 116
Design and construction engineers span canyon between abstract theory and concrete reality (C)..... D 96
Engineer in international affairs. F 54, (D) S 101
EJC ads aim at press; hit wide public... Mr 140
How to present an idea..... O 50
Mechanical engineers in the building industry..... S 118
New system of merit ratings..... D 38
Pittsburgh Section sponsors talk on managerial control and utilization of engineering manpower..... My 128
Some attitude and personality characteristics of engineers in industry (A)..... Ap 112
The vanishing engineer? (A)..... Jl 53
Who should manage engineers?..... S 54

ENGINEERS COUNCIL FOR PROFESSIONAL DEVELOPMENT
Annual Meeting, 1960..... D 100

ENGINEER'S EARNINGS
How to double your income (Junior Session panel)..... Ja 133
Tyro tycoon—that's a young engineer. My 115

ENGINEERS JOINT COUNCIL
Annual Meeting, 1960..... Mr 115
EJC ads aim at press; hit wide public. Mr 140
EJC mission to Russia studies utilization of engineers and technicians..... S 104
A giant step; the EJC *Engineer* (Ed)..... F 53
Institute for Defense Analyses meets with EJC..... F 125

ENGINEERS' REGISTRATION
Professional registration..... F 134

ENGINEERS' UNIONS
Engineers' unions—an uncertain future. O 134

ENGINES. *See also* VIBRATION
GMR Stirling Thermal Engine (A)..... Ap 88
International Congress on Combustion Engines (CIMAC) Denmark, 1962... My 112
Rotating combustion engine (A)..... Ja 51

ENGINES—GAS. *See also* LUBRICANTS, PISTON RINGS
Economic development of prime movers using natural gas fuels (A)..... D 92
Maintenance of turbocharged engines including large and medium sized units in gas transmission, petrochemical and gas processing plants (A)..... D 90

ENGINES—INTERNAL-COMBUSTION
Rotating combustion engine (A)..... Ja 51

ERINGEN, A. C.
Elastic half plane subjected to surface tractions with random magnitude or separation (A)..... O 95

ESCALATORS
Britain's first "Travolator" (A)..... N 97

ESCHENBRENNER, G. P.
Pressure-vessel overtemperature hazards (A)..... Ap 102

ESHELMAN, JOSEPH W.
Obituary..... O 141

ESKEN, ROBERT
Automatic assembly..... My 40

ESSENBURG, F.
On a class of nonlinear axisymmetric plate problems (A)..... O 94

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

ESTRADA, HERBERT
Biography..... Ja 132
Elected Fellow of ASME..... Ja 132

EUROPEAN SURVEY; ENGINEERING PROGRESS IN THE BRITISH ISLES AND WESTERN EUROPE..... Ja 64, F 102, Mr 94, Ap 100, My 84, Je 88, Jl 66, Ag 76, S 88, O 84, N 96, D 80

EVAPORATION. *See* REFRIGERANTS

EVAPORATORS
Flash evaporators..... Ap 84
Utility converts sea water (A)..... Ap 92

EVERITT, A. L.
Automotive engine mount design (A)... D 87

EXCAVATION
Frozen-wall excavation (A)..... F 95

EXPLOSION FORMING. *See* METAL FORMING

EXPLOSIONS
Boiler furnace fuel explosion survey (A)..... Ap 109
Protecting industrial furnaces from explosions (A)..... Ap 108

EXPLOSIVES. *See also* METAL FORMING
Explosive compaction of powders (A)... Jl 58

EXTRAPOLATION. *See* METAL CREEP

F

FACTORY LAYOUT
The plant layout..... Jl 32

FAHRNER, W. J.
System expansion—fuel costs versus capital charges..... N 64, (correction) D 96

FAIRCHILD, FREDERICK P.
Obituary..... Jl 122

FAIRMAN, J. F.
Receives Edison Medal..... Mr 119

FAND, R. M.
Influence of sound on free convection from a horizontal cylinder (A)..... N 98

FANS
Centriline fan (A)..... N 83
Distributed suction boundary-layer control applied to axial fans (A)..... Ag 80

FARBER, E. A.
Solar air conditioning with an ammonia-water absorption refrigeration system (A)..... Ap 111

FARNSWORTH, HAROLD VINCENT
Obituary..... F 144

FARNSWORTH, L. P.
Mechanical design of 150-ft-diam metal space frame radome (A)..... My 88

FARQUHAR, J.
Experimental study of cavitation in a mixed flow pump impeller (A)..... Je 96

FEEDWATER TREATMENT
Flash evaporators..... Ap 84
Pilot-plant water studies for Eddystone Station (A)..... Ap 105
Research problems relating to production and quality control of ultrapure feedwater for Eddystone Station (A).. F 106
Research problems relating to production and quality control of ultrapure feedwater for Eddystone Station (A).. Ap 104
Utility converts sea water (A)..... Ap 92
Water-treatment, corrosion, and internal deposit studies for Eddystone (A)..... Ap 105

FEHN, F. P.
Metal-forming under electronic sequencing (A)..... Je 99

FEINSTEIN, LEONARD C.
Fillers and stresses in an epoxy resin (A)..... D 86

FELDBUSH, HARRY AUGUST
Obituary..... D 131

FELGAR, R. P.
Low-cycle fatigue of two nickel-base alloys by thermal-stress cycling (A)... Ja 74

FELLOWSHIPS. *See* EDUCATION

FELTNER, C. E.
Micro-plastic strain hysteresis energy as a criterion for fatigue fracture (A).. Jl 71

FENWICK, J. R.
Simulation testing of rocket engine control components (A)..... Ag 80

FERNES, EMIL FREDERICK
Obituary..... D 131

FERRIS, J. G.
Water resources in industry's future.... Ja 34

FILBAN, T. J.
Small-diameter-orifice metering (A)..... F 112

FILMS. *See* COOLING SYSTEMS, INDUSTRIAL FILMS, METAL CUTTING, PLASTICS

FINCH, JAMES KIP (author)
The story of engineering (BR)..... N 114

FINDLEY, W. N.
Energy versus stress theories for combined stress—a fatigue experiment using a rotating disk (A)..... Jl 71

FINNIE, IAIN
Steady-state creep of a thick-walled cylinder under combined axial load and internal pressure (A)..... Ja 73

FIRSTENBERG, H.
Burnout in turbulent flow—a droplet diffusion model (A)..... N 99

FISHWICK, WILFRED
Biography..... Ja 107
Receives Blackall Machine Tool and Gage Award..... Ja 107

FITZPATRICK, FRANK RICHARD
Obituary..... Jl 122

FLANIGAN, F. M.
Solar air conditioning with an ammonia-water absorption refrigeration system (A)..... Ap 111

FLATOW, P. L.
How common is common sense? (A)... Ap 108

FLEISCHMANN, W. L.
Fabrication of a one-inch thick ten-inch diameter welded inconel pipe (A)..... Jl 72

FLEMING, ARTHUR P. M.
Obituary..... D 131

FLETCHER, MAURICE J.
Biography..... Ja 105
Receives Holley Medal..... Ja 105
Some considerations in the design of hand substitutes (A)..... F 112

FLIGHT CONTROL SYSTEMS. *See* AIRPLANES

FLORENCE, A. L.
Thermal stresses due to disturbance of uniform heat flow by an insulated ovaloid hole (A)..... O 94

FLOW OF FLUIDS. *See also* BOUNDARY LAYER, DIFFUSERS, FLUID FRICTION, FOG FLOW, HEAT TRANSFER, INSTRUMENTS—TEMPERATURE, MASS TRANSFER, VORTEXES
Accelerations and mean trajectories in turbulent channel flow (A)..... Je 96
Coring phenomenon in the flow of suspensions in vertical tubes (A)..... Je 97
Critical and two-phase flow of steam (A)..... F 106
Experimental determination of statistical properties of two-phase turbulent motion (A)..... My 90
Experimental study of the effects of nonuniform wall temperature on heat transfer in laminar and turbulent axisymmetric flow along a cylinder (A)..... My 92
Heat transfer by a turbulently flowing fluid-solids mixture in a pipe (A)..... N 101
Hydrodynamic entrance lengths for incompressible laminar flow in rectangular ducts (A)..... F 115
Natural-circulation tests with water at 800 to 200 psia under nonboiling, local boiling, and bulk boiling conditions (A)..... N 102
Note on the assessment of flow disturbances at a blunt body traveling at supersonic speeds owing to flow disturbances in free stream (A)..... O 89
On the indeterminateness of the boundary conditions for the mixing of two parallel streams (A)..... Ap 113
On three and two-dimensional disturbances of pipe flow (A)..... O 89
Radial distributions of temporal-mean peripheral velocity and pressure for fully developed turbulent flow in curved channels (A)..... F 109
Some temperature and pressure measurements in confined vortex fields (A)..... S 90
Two-dimensional flow with standing vortices in ducts and diffusers (A).... Je 98
Two-dimensional gas jets (A)..... O 92
Two-phase slug flow (A)..... N 102

FLOW TURNING. *See* METAL FORMING

FLUE GASES. *See* AIR POLLUTION

FLÜGGE-LOTZ, IRMGARD
Optimum response of second-order, velocity-controlled systems with contactor control (A)..... N 107

FLUID FRICTION
Heat-transfer and flow-friction characteristics of crossed-rod matrices (A) . My 92
Influence of bypass channels on the laminar flow heat-transfer and fluid-friction characteristics of shell and tube heat exchangers (A)..... Ag 84
Laminar skin friction and heat transfer on flat plates with wedge-shaped

FLUID FRICTION (*continued*)
grooves in flow direction (A)..... F 109
Roughness effects on frictional resistance of enclosed rotating disks (A).... F 109

FLUID METERS. *See also* INSTRUMENTS—FLUID-DENSITY, NOZZLES
Coefficients of discharge of a quadrant-type concentric orifice meter, with flange, radius, and corner taps (A).... Ja 72
Heat-transfer characteristics of hot film sensing element used in flow measurement (A)..... My 90
Influence of orifice geometry on static pressure measurements (A)..... My 90
Quadrant edge orifice—a fluid meter for low Reynolds number (A)..... F 112
Small-diameter-orifice metering (A)..... F 112
Study of viscosity effect and its compensations on turbine-type flowmeters (A)..... F 112
Twin throat venturi: a new fluid-flow measuring device (A)..... Ja 72
Use of turbine type meters for pipeline metering (A)..... D 92
Variable flow resistance with adjustable multihole orifice plates in series (A)... My 90

FOG FLOW
Burnout in turbulent flow—a droplet diffusion model (A)..... N 99

FOLLANSBEE, J. W.
The complete engineer..... Ag 133
Mechanical engineers in the building industry..... S 118

FOLTZ, RAYMOND DIETRICH
Obituary..... Ja 138

FOOTE, J. H.
Receives Howard Coonley Medal..... D 103

FOOTLIK, IRVING M.
Warehousing without pallets..... My 67

FORGING
Nickel-chromium-iron alloy (Inconel) forgings for nuclear-reactor systems—a summary of forging techniques and mechanical properties (A)..... Jl 72
Some problems of press forging lead and aluminum (A)..... Mr 96

FORGINGS
Automatic inspection of forgings (A).... Ag 65

FORNEY, ROSS
Eight years' experience with automatic burner controls (A)..... N 106

FORRAY, M.
Deformation and moments in elastically restrained circular plates under arbitrary load or linear thermal gradient (A)..... F 107

FORRESTER, JAY W.
Feedback...consumer to factory (D)..... Je 103

FOSHOLT, S. K.
Cost comparison—diesel and steam (A)..... Jl 75

FOUNDRY PRACTICE
Ceramic-mold casting technique (A).... Ag 69

FOWLER, J. F.
Mathematical models for analysis of job shop capital equipment (A)..... Ag 88

FOX, E. A.
Development associated with the super-pressure turbine for Eddystone Unit No. 1 (A)..... Ap 105

FOX, G. A.
Effect of scale form on the speed and accuracy of scale reading (A)..... Ag 85

FRACTURE. *See* METAL TESTING

FRASER, DAVID R.
Glass-reinforced plastic as an aviation gas-turbine compressor-housing material (A)..... S 98

FREIGHT CARS. *See* RAILROAD CARS

FRICTION. *See also* BEARINGS, FLUID FRICTION, METAL CUTTING
Study of critical velocity of stick-slip sliding (A)..... F 107

FRIED, PAUL
Computer program to determine the throughput rate of a heated pipeline (A)..... D 89

FRIES, DONALD J.
Models—a basic tool in process-plant design (A)..... D 87

FRISCH, J.
Fracture of flat and curved aluminum sheets with stiffeners parallel to the crack (A)..... Jl 72

FRY, S. L.
Application of internal-gear rotary pumps to viscous liquid service (A)... Je 95

FRYLING, GLENN R.
Materials: science, properties, and educational (BR)..... My 99

FU, C.
Criteria for design of foundations for precision tracking radars considering dynamic response (A)..... My 88

FUEL CELLS
The fuel cell (D)..... Mr 108
Fuel-cell power pack (A)..... Ag 68
Long-term fuel-cell research (A)..... N 88

FUEL INJECTION
Adiabatic bulk modulus of normal paraffin hydrocarbons from hexane to hexadecane (A)..... My 90

FUELS. *See also* NATURAL GAS
Concept of combustion control for firing two solid fuels (A)..... D 82
Decade of electric utility fuel experience (A)..... D 82
Pressurization of granular solid fuels (A)..... Ap 109

FUMES. *See* GAS CLEANERS

FURNACES. *See also* BOILER FURNACES, INDUSTRIAL FURNACES
Radiant heat-transfer analysis of a furnace or other combustion enclosure (A)..... N 101

FUSION. *See* ATOMIC ENERGY

G

GAGES
Infrared width gage (A)..... Jl 57
Inspecting taper threads—a new technique..... Ag 43

GALIMBERTI, J. M.
Metal cutting (a review of the literature for 1959)..... S 68

GALLETLY, G. D.
Influence coefficients and pressure vessel analysis (A)..... Ap 102
Some results on continuously drilled, fixed tube plates (A)..... D 89

GALLOWAY, CHARLES DOUGLAS
Obituary..... Ap 152

GALLOWAY, HAROLD R.
Recent developments in field gas-handling facilities (A)..... D 91

GARD, EARLE WILLIAM
Obituary..... D 131

GARDNER, K. A.
Heat-exchanger tube-sheet design—3. U-tube and bayonet-tube sheets (A)..Mr 106
Thermal-contact resistance in finned tubing (A)..... My 91

GARETT, OLEN RANDEL
Obituary..... D 131

GAROFALO, F.
Survey of various special tests used to determine elastic, plastic, and rupture properties of metals at elevated temperatures (A)..... Mr 102

GARTRELL, H. E.
Study of free-convection boundary-layer oscillations and their effects on heat transfer (A)..... Ag 83

GARUDACHAR, B. N.
Roll-force and torque coefficients for hot-strip steel mill (A)..... Ja 73

GAS CLEANERS
Flooded-disk scrubber (A)..... Je 82
Plastic fume scrubber (A)..... My 79

GAS DYNAMICS
Free expansion of dry and moist air (A)..... Ag 82

GAS INDUSTRY
Automatic gas plant (A)..... Ag 70

GAS LUBRICATION. *See* BEARINGS, LUBRICATION

GAS TURBINES. *See also* AIRPLANE ENGINES, BURSTING TESTS, MARINE ENGINEERING, MOTOR VEHICLES, PETROLEUM REFINING, POWER PLANTS—GAS TURBINE
Behavior of gas-turbine combustion chambers while burning different fuels (A)..... Je 92
Combined steam turbine-gas turbine plant for marine use (A)..... My 88
Considerations for the reduction of noise in ship installations of gas turbines (A)..... Ja 68
Description of a 9000-hp single-shaft gas turbine (A)..... Je 95
Design and development of a convective air-cooled turbine and test facility (A)..... Ap 106
Development and sea trials of marine Proteus engines for Brave Class fast patrol boats (A)..... My 88
Development experience with prototype gas turbines (A)..... Je 92

GAS TURBINES (*continued*)
Development of a 3500 hp marine gas turbine (A)..... Ja 68
Economic development of prime movers using natural gas fuels (A)..... D 92
1100-hp gas turbine for marine applications (A)..... Je 94
Gas-turbine-exhaust recovery cycle (A).. Je 92
Gas-turbine ore truck (A)..... Ap 87
Maintenance experience with Boeing gas turbine engines (A)..... S 92
Maintenance of simple-cycle natural-gas-burning gas turbines during ten years' operation in utility service (A)..... S 97
Maintenance on pipeline gas turbines (A)..... Ag 80
Marine and mobile application of industrial gas turbines (A)..... Ap 106
New gas-turbine magazine started in 1960..... Ap 142
One shaft versus two: gas-turbines in gas-line pumping..... O 46
Operating experience of Nimonic 80A first-stage buckets in natural-gas-burning turbines (A)..... Je 92
Operation and maintenance of remotely controlled gas-turbine units (A)..... Je 92
Operational experience with a 15-mw gas turbine generator in an iron and steel works (A)..... Je 94
Progress on coal-fired gas turbine (A)... Ag 68
Radial turbine, for low specific speeds and low-velocity factors (A)..... Ap 106
Report on 9000-hr operation of marine propulsion gas turbine in the *John Sergeant* (A)..... Je 93
Smoke reduction in residual-fuel-burning gas-turbine combustion system (A)... Je 93
25,000 kw Mene Grande gas-turbine installation (A)..... Ja 68
Ultralightweight gas-turbine (A)..... Ap 86

GASES. *See also* LIQUIFIED PETROLEUM GASES, PETROLEUM INDUSTRY, PSYCHROMETRIC DATA
Radiation heat transfer in a spherical enclosure containing a participating heat-generating gas (A)..... N 101
Thermal conductivity and Prandtl number of carbon dioxide and carbon-dioxide air mixtures at one atmosphere (A) O 88

GATCOMBE, E. K.
Rocket motor-gear tooth analysis... Hertzian contact stresses and times (A)..... Mr 100

GATZEMEYER, J. B.
Smoke reduction in residual-fuel-burning gas-turbine combustion system (A)... Je 93

GAVIN, JAMES M.
The challenge of the 1960's..... Mr 46

GAYLORD, E. W.
On the theoretical analysis of a dynamic thermocouple: 2—the continuous area interface (A)..... O 90

GAYLORD, WILLIAM WATERMAN
Obituary..... N 139

GAZIS, D. C.
Extensional vibrations and waves in a circular disk and a semi-infinite plate (A)..... S 98

GEARON, GERALD
Obituary..... Je 131

GEARS. *See also* GRINDING
Analysis of factors used for strength rating helical gears (A)..... Mr 100
Bending strength of gear teeth by cantilever-plate theory (A)..... Mr 100
Dynamic stresses in traction motors resulting from defective gearing (A).... Mr 104
Gear and bearing lubrication in extreme environments with polyphenyl ethers (A)..... D 84
Gear-position error control (A)..... Ja 72
Helixform bevel and hypoid gears (A)... Ja 72
Rocket motor-gear tooth analysis.... Hertzian contact stresses and times (A)..... Mr 100
Thermal instability in high-speed gearing (A)..... F 106
Twinworm drive—a self-locking worm-gear transmission of high efficiency (A)..... Ja 71
Two-stage planetary arrangements for the 15:1 turboprop reduction gear (A)..... S 90

GEBHART, B.
Transient natural convection from vertical elements (A)..... N 98

GEIGER, ALBERT WILLIAMS
Obituary..... My 137

GELLERT, NATHAN HENRY
Obituary..... My 137

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

GENERATORS. *See* ELECTRIC MACHINERY

GEORGIAN, J. C.
Some experimental results from a two-cycle diesel-engine exhaust-waste heat exchanger (A) ..... Ag 87

GEOTHERMAL POWER. *See* POWER PLANTS—STEAM

GERARD, GEORGE
Correlation of theoretical and photothermoelastic results on thermal stresses in idealized wing structures (A) ..... Je 90
Photoelastic model engineering ..... Jl 43

GERBER, SAMUEL ROBERT
Obituary ..... Je 131

GEWINNER, W. J.
Nozzle design cuts locomotive costs (A) ..... Ag 87

GHIRARDINI, ROWE ANGELO
Biography ..... Ja 109
Receives Arthur L. Williston Medal and Award ..... Ja 109

GIBBS, WILLIAM FRANCIS
Receives Michael I. Pupin Medal ..... F 127

GIFFORD, ALBERT JAMES
Obituary ..... F 144

GILLETT, JOHN
Obituary ..... S 124

GILLMOR, REGINALD EVERETT
Obituary ..... My 137

GLASGOW, L. E.
Operating experience and advanced designs of sodium-graphite reactors (A) ..... Mr 99

GLASS. *See also* PIPELINES
Glass-ceramics ..... O 65

GLASSTONE, SAMUEL
Biography ..... Ja 106
Receives Worcester Reed Warner Medal ..... Ja 106

GLAZEBROOK, ROBINSON COX
Obituary ..... Je 131

GLEASON, GILBERT HOWE
Obituary ..... Je 131

GOBETZ, FRANK W.
Performance of the ducted rocket (A) ... S 95

GODET, SIDNEY
Self-stabilizing gyro control system for space vehicles (A) ..... S 95

GODMAN, R. R.
Elimination of noise in the heat exchanger of a supersonic wind tunnel (A) ..... Ap 113

GOENTNER, WILLIAM BEANS
Obituary ..... My 137

GOGLIA, G. L.
Experimental determination of limit of supersaturation of nitrogen vapor expanding in a nozzle (A) ..... Ag 84

GOLAND, MARTIN
Beyond the captured territory ..... S 57

GOLD, A. J.
Possibilities for simulation of dynamic physiology (A) ..... S 95

GOLDBERG, I. A.
Human factors evaluation of a keyset entry technique for frequency and channel selection (A) ..... Ag 84

GOLDBERG, J. E.
Effect of small hub-radius change on bending frequencies of a rotating beam (A) ..... O 94

GOLDBERG, M. A.
Effect of shear deformations on the bending of rectangular plates (A) ..... Ap 114

GOLDEN, ROBERT F.
Obituary ..... Ap 152

GOLDHOFF, R. M.
Some observations on the extrapolation of high-temperature ferritic steel data (A) ..... Mr 102

GOLDIN, ROBERT
Structural designers' view of criteria trends (A) ..... S 96

GOLDMANN, K.
Burnout in turbulent flow—a droplet diffusion model (A) ..... N 99

GOLDSTEIN, A. S.
Professional registration ..... F 134

GOODE, H. H.
Decontrol the engineer? ..... My 36

GOODE, HENRY P.
Method for determining the optimum starting quantity when manufacturing to fixed order size (A) ..... S 92

GOODIER, J. N.
Thermal stresses due to disturbance of uniform heat flow by an insulated ovaloid hole (A) ..... O 94

GOODMAN, T. P.
Kinematics; a German-English glossary ..... D 49
Heat-balance integral—further considerations and refinements (A) ..... S 90

GORDON, M. B.
Use of transparent scale models in the design of dust-collector and gas duct systems for coal-burning electric-generating stations (A) ..... F 111

GORDON, PETER BEN
Receives F. Paul Anderson Medal ..... S 105

GOUGING TOOLS. *See* WELDING AND CUTTING

GOULD, GREGORY
Influence of volatile matter on the combustion of pulverized coal (A) ..... D 82

GOVERNORS
Development of a speed and load-sensing governor (A) ..... Jl 75
Experiences with hydraulic prime-mover controls (A) ..... Je 96
Field adjustment of hydraulic-turbine governors (A) ..... Ja 79
Field testing and adjusting of hydraulic turbine-generator to improve system regulation (A) ..... Ja 69
Simplified instrumentation and field checking of hydraulic turbine governors (A) ..... Ja 69

GRABOWSKI, H. A.
Water-treatment, corrosion, and internal deposit studies for Eddystone (A) ... Ap 105

GRAFF, ROBERT A.
Sulfur recovery from petroleum gases (A) ..... D 90

GRAHAM, CLIFTON B.
Pathfinder nuclear plant ..... Ap 67

GRANT, N. J.
Creep-rupture properties of 80 Ni–20 Cr alloys (A) ..... Mr 103
Recent advances in dispersion strengthened metal-metal oxide structures (A) ..... Jl 73
Role of atmosphere in the creep-rupture behavior of 80 Ni-20 Cr alloys (A) ... Mr 102

GRAPHITE. *See* HIGH-TEMPERATURE MATERIALS

GRAPHITIZATION
Graphitization failures in piping (D) .... F 117

GRASSE, HAROLD
Biography ..... Ag 125
An engineer looks at human behavior ... Ag 34
Nominated for Vice-President ..... Ag 125

GRASSI, R. C.
Study of theories of fracture under combined stresses (A) ..... Jl 73

GRAVELLE, PAUL
Biography ..... Ja 131
Elected Fellow of ASME ..... Ja 131

GRAVITY. *See* HEAT TRANSFER

GREEN, P. F.
The 2000-hour Proteus turboprop ..... Ja 37

GREENE, E. E.
Dynamic stresses in traction motors resulting from defective gearing (A) ... Mr 104

GREENE, ROY M.
Economic development of prime movers using natural gas fuels (A) ..... D 92

GREGG, J. L.
Analysis, results, and interpretation for radiation between some simply arranged gray surfaces (A) ..... N 101
Mass transfer, flow, and heat transfer about a rotating disk (A) ..... F 110

GRIFFIN, W. A.
Small-diameter-orifice metering (A) ..... F 112

GRIFFITH, PETER
Two-phase slug flow (A) ..... N 102

GRINDELL, A. G.
Correlation of cavitation inception data for centrifugal pump operating in water and in sodium-potassium alloy (NaK) (A) ..... F 108

GRINDING
Brake-disk grinding machines (A) ..... O 84
Grinding (a review of the literature for 1959) ..... S 73
Internal-helical-gear grinder (A) ..... F 102
On the analysis of random errors in precision grinding operations (A) ..... Jl 70
Progress in boring and grinding (A) ..... N 90
Shoulder grinding to fine limits (A) ..... O 84

GRINDING WHEELS
Semiautomatic grinding machines (A) ... Je 79

GROCHOWSKI, F. A.
Variable flow resistance with adjustable multihole orifice plates in series (A) ... My 90

GROSH, R. J.
Smoothed pressure—volume—temperature data for water in the critical region derived from experimental measurements (A) ..... N 98
Survey of P-V-T data for water in the critical region (A) ..... N 98

GROSS, W. A.
Perturbation solutions for gas-lubricating films (A) ..... D 85

GUINN, DAVID C.
Floating vessel drilling and multicompletion method (A) ..... S 91

GULICK, R. A.
More laboratory for less money ..... My 57

GURNEA, R. F.
Fabrication of a one-inch thick ten-inch diameter welded inconel pipe (A) ..... Jl 72

GURTIN, M. E.
On the use of clearance in viscous dampers to limit high-frequency force transmission (A) ..... S 91
Vibration response of a linear undamped system resting on a nonlinear spring (A) ..... O 88

GUSTAFSSON, O. G.
Axially symmetric extensional vibrations of a circular disk with a concentric hole (A) ..... Mr 106

GWINN, JAMES T., JR.
Elastomeric gyro suspensions (A) ..... D 85

GYROSCOPES. *See also* SPACE VEHICLES
Ceramic gas-bearing gyro (A) ..... S 76
Cryogenic gyroscope (A) ..... Mr 78
Elastomeric gyro suspensions (A) ..... D 85
On the annular damper for a freely processing gyroscope (A) ..... F 114
Some gyroscopic oscillations (A) ..... O 96
Viscous shear torque in floated gyroscopes (A) ..... S 94

H

HABER, HAROLD EDGAR, JR.
Obituary ..... My 137

HACHA, THOMAS H.
Heat transfer from humid air to fin and tube extended surface cooling coils (A) ..... O 86

HACKSTAFF, JOHN DUDLEY
Obituary ..... Je 131

HAGIUS, K. S.
Automatic control system for a gas pipeline compressor station (A) ..... D 88

HAHN, R. S.
Metal cutting (a review of the literature for 1959) ..... S 68
On the analysis of random errors in precision grinding operations (A) ..... Jl 70

HALE, HERBERT ZUCKER
Obituary ..... My 137

HALL, HERBERT H.
The manipulator: its design and application (D) ..... Ag 90

HALL, J. W.
The plant layout ..... Jl 32

HALL, WESLEY HAROLD
Obituary ..... My 137

HALLE, HENRY
Transient heating of two-element slabs exposed to a plane heat source (A) .... S 90

HAM, I.
Machinability of nodular cast irons—Part 1: Tool forces and flank adhesion (A) ..... Jl 70

HAMILTON, C. C.
Industrial boiler design ..... Mr 52

HAMILTON, WILLIAM B.
Obituary ..... Jl 122

HAMILTON, WILLIAM EDWARD
Obituary ..... Je 131

HAMMITT, F. G.
Liquid-metal cavitation—problems and desired research (A) ..... Je 97

HAMMOND, CLAYTON B.
Photography for plant maintenance (A) ..... D 91

HAN, LIT S.
Approximate analysis of the influence of aerodynamic heating and initial twist on the torsional stiffness of thin wings (A) ..... O 89
Hydrodynamic entrance lengths for incompressible laminar flow in rectangular ducts (A) ..... F 115

HANES, L. F.
Manual attitude control in space—arrangement of controls (A) ..... Ag 85

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

HANNUM, JOSHUA EYRE
Obituary ..... Ag 140
HANSEN, ANTON
Obituary ..... Mr 138
HANSEN, O. A.
Materials below −100 F ..... Ap 60, Ag 95
HANSON, H. E.
Heat stress in the desert ..... Je 59
HANZEL, J. A.
Principles of processing liquid urethane elastomers (A) ..... D 86
HARBESON, JAMES PAGE, JR.
Obituary ..... Ja 138
HARDIE, WILLIAM HUGER
Obituary ..... F 144
HARDRATH, H. F.
Note of the calculation of the strength of specimens containing fatigue cracks (A) ..... Ap 112
HARDY, J. D.
Effective stimulus for warmth sensation in man (A) ..... My 92
HARRINGTON, CARLOS E.
Obituary ..... N 139
HARRIS, CARL CHESTER
Obituary ..... Jl 122
HARRIS, W. D.
Design strength data and calculations on thermoplastics (A) ..... D 86
HARRISON, EDWIN D.
Receives honorary DE degree ..... D 103
HARTENBERG, R. S.
Approximate synthesis of spatial linkages (A) ..... F 113
Kinematics; a German-English glossary ..... D 49
HARTLEY, ARTHUR CLIFFORD
Obituary ..... My 137
HARTLEY, HARRY DWIGHT
Obituary ..... Ja 138
HARTMAN, W. A.
Boiling-water-reactor study (A) ..... Mr 99
HARTMANN, M. J.
Observation of cavitation in a low hub-tip ratio axial-flow pump (A) ..... Je 97
HARTNETT, J. P.
Effect of aspect ratio and tube orientation on free-convection heat transfer to water and mercury in enclosed circular tubes (A) ..... Ag 84
Review of heat-transfer literature, 1959. Ag 47
Velocity distributions, temperature distributions, effectiveness, and heat transfer for air injected through a tangential slot into a turbulent boundary layer (A) ..... N 102
HARTWEG, D. G.
Radioactive measurement of fluid density (A) ..... D 93
HAUSER, G. B.
Biography ..... Jl 111
Elected Fellow of ASME ..... Jl 111
HAWKINS, GEORGE WALTER
Obituary ..... D 131
HAYES, L. E.
Film cooling with multiple slots and louvers (A) ..... N 102
HAYNES, A. L.
Levacars: why and how? ..... S 62
HAYS, DONALD FRANK
Biography ..... Ja 109
Receives Pi Tau Sigma Gold Medal Award ..... Ja 109
HEALD, HENRY T.
Elected Honorary Member of ASME ... S 105
HEAT-EXCHANGE EQUIPMENT. *See also* TUBE SHEETS
Climatic considerations in the design of air-cooled heat exchangers (A) ..... My 93
Determination of boiling film coefficient for a heated horizontal tube in water-saturated wick material (A) ..... N 105
Dynamics of heat exchangers and their models (A) ..... Ap 112
Efficiency of finned annular passages (A) ..... O 86
Enrico Fermi heat exchangers (A) ..... My 77
Heat-exchanger tube-sheet design 3. U-tube and bayonet-tube sheets (A) ..... Mr 106
The low level economizer ..... Je 64, N 110
Portable heat exchangers (A) ..... My 77
Saving almost 2 million Btu per hr (A) ..... Ag 71
Shell-and-tube heat exchangers: effect of bypass and clearance streams on the main stream temperature (A) ..... N 103
Some experimental results from a two-cycle diesel-engine exhaust-waste heat exchanger (A) ..... Ag 87
Systematic approach to the design of compact heat exchangers (A) ..... My 94
HEAT-EXCHANGE EQUIPMENT (*continued*)
Thermal-contact resistance in finned tubing (A) ..... My 91
HEAT-INSULATING MATERIALS
Apparent thermal conductivity of fibrous materials (A) ..... My 96
Heat shield for 3000 F (A) ..... Ja 61
Precise measurement of clothes insulation during controlled operation of the human (A) ..... Ap 112
HEAT TRANSFER. *See also* CONDENSATION, CONDENSERS, COOLING SYSTEMS, FLUID METERS, HEAT-INSULATING MATERIALS, LIQUID METALS, PHYSIOLOGY, REFRIGERANTS
Analysis, results, and interpretation for radiation between some simply arranged gray surfaces (A) ..... N 101
Application of variational methods to radiation heat-transfer calculations (A) ..... My 94
Clothed man (D) ..... F 121
Combined free and forced-convection heat-generating laminar flow inside vertical pipes with circular sector cross sections (A) ..... F 110
Effect of apparent density and gas-cell size on the thermal conductivity of cellular materials (A) ..... My 95
Effect of aspect ratio and tube orientation on free-convection heat transfer to water and mercury in enclosed circular tubes (A) ..... Ag 84
Effect of density variations on heat transfer in the critical region (A) ..... N 100
Effect of transient loads on the refrigerated-space temperature of a cooling complex (A) ..... Mr 105
Experimental study of boiling in reduced and zero gravity fields (A) ..... N 103
Experimental study of the effect of nonuniform wall temperature on heat transfer in laminar and turbulent axisymmetric flow along a cylinder (A) ..... My 92
Experimental study of the effects of strong progressive sound fields on free-convection heat transfer from a horizontal cylinder (A) ..... N 99
Experiments on heat transfer from spheres including combined natural and forced convection (A) ..... F 110
Fabrication and annealing factors affecting grain size of 18Cr8Ni-Ti superheater materials in steam boilers (A) .. Mr 102
Forced-convection heat transfer from an isothermal sphere to water (A) ..... N 102
Geometric factors for radiative heat transfer through absorbing medium in Cartesian co-ordinates (A) ..... My 93
Heat-balance integral—further considerations and refinements (A) ..... S 90
Heat transfer and effectiveness for a turbulent boundary laver with tangential fluid injection (A) ..... My 95
Heat-transfer and flow-friction characteristics of crossed-rod matrices (A) ..... My 92
Heat transfer and pressure drop in an annular gap with surface spoilers (A) ..... N 101
Heat transfer by a turbulently flowing fluid-solids mixture in a pipe (A) ..... N 101
Heat transfer from humid air to fin and tube extended surface cooling coils (A) ..... O 86
Heat transfer to Freon 12 near the critical state in a natural-circulation loop (A) ..... F 110
Heat transfer to laminar flow across a flat plate with a nonsteady surface temperature (A) ..... N 102
Heat transfer to water in turbulent flow in internally heated annuli.
Part 1—Stationary flow (A) ..... N 100
Part 2—Pulsating flow (A) ..... N 100
Influence of bypass channels on the laminar flow heat-transfer and fluid-friction characteristics of shell and tube heat exchangers (A) ..... Ag 84
Influence of sound on free convection from a horizontal cylinder (A) ..... N 98
Laminar skin friction and heat transfer on flat plates with wedge-shaped grooves in flow direction (A) ..... F 109
Man and his thermal environment ..... Je 57
Mass transfer, flow, and heat transfer about a rotating disk (A) ..... F 110
Measured variations in local surface temperatures in pool boiling of water (A) ..... N 103
On combined free and forced convection in channels (A) ..... F 110
Pool boiling in an accelerating system (A) ..... N 103
Possible similarity solutions for laminar free convection on vertical plates and cylinders (A) ..... F 115
Radiant heat-transfer analysis of a furnace or other combustion enclosure (A) N 101
HEAT TRANSFER (*continued*)
Radiation heat transfer in a spherical enclosure containing a participating heat-generating gas (A) ..... N 101
Radiative transport within an ablating body (A) ..... N 101
Review of heat-transfer literature, 1959 .. Ag 47
Study of free-convection boundary-layer oscillations and their effects on heat transfer (A) ..... Ag 83
Summary of experiments on turbulent heat transfer from a nonisothermal flat plate (A) ..... My 95
Temperature distribution in an internally cooled, heat-generating solid (A). Ag 83
Theoretical analysis of a Peltier refrigerator (A) ..... My 95
Thermal-conductivity studies with the Powell method (A) ..... O 86
Thermal radiation from a cylindrical enclosure with specified wall heat flux (A) ..... My 94
Thermal study of composite heat sinks (A) ..... Ag 83
Thermal transfer in turbulent gas streams. Effect of turbulence on local transport from spheres (A) ..... O 93
Transient conduction in coaxial cylinders with relative motion and heat generation (A) ..... O 91
Transient heating of two-element slabs exposed to a plane heat source (A) .... S 90
Transient natural convection from vertical elements (A) ..... N 98
Tube metal temperatures for structural design (A) ..... Ap 103
Wall temperature and heat flux measurement in a round tube (A) ..... O 86
HEAT-TREATMENT
Continuous heat-treating in controlled-atmosphere furnaces (A) ..... F 88
Practical aspects of the heat-treatment of the high-speed steels (A) ..... D 88
HEATERS
Electric-arc heater (A) ..... N 85
HEATING
Heating with "cold" light (A) ..... O 78
Horsepower to heat the nation (A) ..... Jl 75
HECKMAN, G. R.
Operating experience of Nimonic 80A first-stage buckets in natural-gas-burning turbines (A) ..... Je 92
HECKMAN, JAMES CONRAD
Obituary ..... Mr 138
HEGINBOTHAM, W. B.
Comparison between the shearing properties of alpha-brass as derived from the cutting process and from static and impact torsion tests (A) ..... Ja 71
HEIDEL, C. M.
System expansion—fuel costs versus capital charges ..... N 64, (correction) D 96
HEIKES, R. R.
Optimization of a sandwiched thermoelectric device (A) ..... N 104
HEIMANN, HARRY
Current status of air-pollution research in the United States (A) ..... F 111
HEINRICH, R. L.
Development of United Air Lines' jet transport galleys (A) ..... Ag 81
HEINZE, WILLIAM AUGUST
Obituary ..... N 139
HELICOPTERS
Little Zipster (A) ..... Ja 55
Short-field airliners ..... O 53
HELTZEL, WILLIAM GILLUM
Obituary ..... Ap 152
HENDLER, E.
Effective stimulus for warmth sensation in man (A) ..... My 92
HENDRY, WICKLIFFE B.
Systematic approach to the design of compact heat exchangers (A) ..... My 94
HENNECKE, H.
Combustion of European coals in modern German steam generators (A) ..... Ap 109
HENRY, L. R.
Automatic control system for a gas pipeline compressor station (A) ..... D 88
HENSCHEL, AUSTIN
Heat stress in the desert ..... Je 59
HERBENAR, A. W.
Operating experience of Nimonic 80A first-stage buckets in natural-gas-burning turbines (A) ..... Je 92
HERRINGTON, L. P.
Clothed man (D) ..... F 121
Prediction of heat-stressed skin boundary temperatures (A) ..... My 92

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

HERRMANN, E. H.
Considerations for the reduction of noise in ship installations of gas turbines (A) ..... Ja 68

HERRMANN, G.
Shear buckling of bars (A) ..... Ap 114

HERZOG, R. P.
Critical comparison of metal-cutting theories with new experimental data (A) ..... Ja 71

HESS, W. T.
Automation—economic justification ..... N 74

HESSEMER, FRITZ M.
Reversible pump-turbines at Niagara Falls (D) ..... O 98

HETÉNYI, M.
Analysis of axially loaded annular shells with application to welded bellows (A) ..... My 96
Method of solution for the elastic quarter-plane (A) ..... F 113

HIBBARD, C. R.
Three-axis numerical control of a precision boring machine (A) ..... Jl 69

HIGGINS, G. H.
Plowshare program ..... Ja 36

HIGH-PRESSURE RESEARCH
Ultrahigh pressures for production use (A) ..... Ag 66

HIGH-TEMPERATURE MATERIALS
Gallium phosphide usable to 1500 F (A) .. Je 85
High-temperature refractory (A) ..... O 81
Pyrographite for 6700 F (A) ..... Ja 59

HIGH-TEMPERATURE RESEARCH
3000 F obtained with pencil-thin quartz lamps (A) ..... N 93

HILES, ELMER KIRKPATRICK
Obituary ..... O 142

HILL, P. G.
Laminary boundary layers in oscillatory flow (A) ..... My 89

HILL, R. C.
Operation and maintenance of remotely controlled gas-turbine units (A) ..... Je 92

HINDMAN, WILBERT LOSSON
Obituary ..... Ag 140

HIRSCH, S. R.
Are engineers interested in engineering? (C) ..... Ap 116

HISTORY
The story of engineering (BR) ..... N 114

HITOMI, K.
Machinability of nodular cast irons—Part 1: Tool forces and flank adhesion (A) ..... Jl 70

HO, YU-CHI
Solution space approach to optimal control problems (A) ..... N 108

HODGE, P. G., JR.
On strain-hardened circular cylindrical shells (A) ..... O 91
Plastic analysis of circular conical shells (A) ..... O 93
Yield conditions for rotationally symmetric shells under axisymmetric loading (A) ..... Je 90

HOEKSTRA, H. D.
The FAA looks at jet transport mechanisms (A) ..... Ag 81

HOFFMAN, G. A.
Optimum tolerances of sheet materials for flight vehicles (A) ..... Ap 113

HOFFMAN, GEORGE A.
Obituary ..... My 137

HOGAN, RANDALL JAMES
Obituary ..... Mr 138

HOGE, FREDERICK H.
Obituary ..... N 139

HOISTING MACHINERY. *See also* WIRE ROPE

HOLDEN, PAUL C.
Optimized condenser-radiator for space applications (A) ..... S 92

HOLDEN, PAUL E.
Biography ..... Ja 131
Elected Fellow of ASME ..... Ja 131

HOLDEN, W. H. T.
Monorail potential? (A) ..... Ag 79

HOLL, J. W.
Effect of air content on the occurrence of cavitation (A) ..... Je 96

HOLLAND, KENNETH D.
New system of merit ratings ..... D 38

HOLLOWAY, RAY HERBERT
Obituary ..... My 138

HOLMAN, J. P.
Experimental study of the effects of

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

HOLMAN, J. P. (*continued*)
strong progressive sound fields on free-convection heat transfer from a horizontal cylinder (A) ..... N 99
Heat transfer to Freon 12 near the critical state in a natural-circulation loop (A) ..... F 110
Study of free-convection boundary-layer oscillations and their effects on heat transfer (A) ..... Ag 83

HOLMS, A. G.
Burst strengths and deformations of welded composite turbine wheels as related to weld quality and plasticity calculations (A) ..... Ja 74

HOLSTROM, ANDREW B.
Biography ..... Ja 132
Elected Fellow of ASME ..... Ja 132

HOLT, WILLIAM W., JR.
Use of turbine type meters for pipeline metering (A) ..... D 92

HONAKER, C. M.
Gas-turbine electric plant in Venezuela . S 58
25,000 Kw Mene Grande gas turbine installation (A) ..... Ja 68

HONORS AND AWARDS
AIChE Founders Awards ..... Ja 125
AIChE Professional Progress Award .... Ja 125
American Institute of Consulting Engineers Award of Merit ..... D 103
ASLE National Award ..... Mr 119
ASM Metals Awards ..... S 108
ASME Awards ..... Ja 104
ASME Machine Design Award ..... Ja 107
ASME Undergraduate Student Award ..... Ja 110
ASA Standards Medal ..... D 103
F. Paul Anderson Medal ..... S 105
Robert W. Angus Medal ..... Jl 91
Arnold O. Beckman Award ..... S 108
Blackall Machine Tool and Gage Award ..... Ja 107
Wallace Clark Award ..... Ja 125
Walton Clark Medals ..... D 103
James Clayton Prize of IME ..... My 114
Howard Coonley Medal ..... D 103
Elliott Cresson Medal ..... S 105, O 108
John Deere Gold Medal ..... Ag 105
James Douglas Gold Medal ..... F 127
Duggan Medal and Prize ..... Jl 91
Edison Medal ..... F 127, Mr 119
Egleston Medal ..... My 114
Albert Einstein Gold Medal and Award ..... My 114
William Hunt Eisenman Engineering Award ..... S 108
William Hunt Eisenman Teaching Award ..... S 108
Enrico Fermi Award ..... Ja 125
John Fritz Medal ..... Ja 105
Henry Laurence Gantt Medal ..... O 108
Marcus A. Grossman Young Authors Award ..... S 108
Daniel Guggenheim Medal ..... S 105
William M. Habirshaw Award ..... D 103
George R. Henderson Medal ..... D 103
Hill Space Award ..... Mr 119
Holley Medal ..... Ja 105
Industrial Research Institute Medal .... Jl 91
IRE Founders Award ..... F 126
Junior Award ..... Ja 108
Lamme Medal ..... Je 123
Leonard Medal ..... Jl 91
Louis E. Levy Medal ..... O 109
Cyrus Hall McCormick Gold Medal .... S 105
Wm. H. McFadden Gold Medal ..... Je 123
Charles T. Main Award ..... Ja 110
Melville Award ..... Ja 108
Samuel Wylie Miller National Award ... Je 123
Newcomen Society Gold Medal ..... Mr 119
Alfred Noble Prize ..... F 127
Old Guard Prize ..... Ja 110
Pi Tau Sigma Gold Medal Award ..... Ja 109
Plummer Medal ..... Jl 91
Howard N. Potts Medal ..... S 105
Prime Movers Committee Award ..... Ja 108
Michael I. Pupin Medal ..... F 127
Rossiter W. Raymond Memorial Award ..... F 127
Richards Memorial Award ..... Ja 108
William Lawrence Saunders Gold Medal ..... Ja 125
John Scott Medal ..... Mr 120
Joseph S. Seaman Gold Medal ..... Je 123
Julian C. Smith Medal ..... Jl 91
Spirit of St. Louis Junior Award ..... Ja 108
Spirit of St. Louis Medal ..... Ja 106
Timoshenko Medal ..... Ja 106
Trinks Award ..... Ag 105
Theodore von Karman Award ..... D 103
Worcester Reed Warner Medal ..... Ja 106
Arthur L. Williston Medal and Award ... Ja 109

HOOK, JAMES WILLIAM
Obituary ..... F 144

HOOPER, L. J.
Biography ..... Ag 132
Elected Fellow of ASME ..... Ag 132

HORNER, DENNIS R.
Computer program to determine the throughput rate of a heated pipeline (A) ..... D 89

HOUGH, FLOYD W.
The metric system (C) ..... Ja 118

HOUSTON, S. M.
Hydracushion underframe and its contribution to the reduction of lading damage (A) ..... Ap 111

HOWE, CLARENCE DECATUR
Julian C. Smith Medal ..... Jl 91

HRONES, J. A.
Urges development of automatic controls in Clayton lecture ..... Ap 137

HSU, S. T.
Measured variations in local surface temperatures in pool boiling of water (A) ..... N 103

HSU, YIH-YUN
Effect of density variation on heat transfer in the critical region (A) ..... N 100

HUBBARD, H. A.
Radiation heat transfer in a spherical enclosure containing a participating heat-generating gas (A) ..... N 101

HUBBELL, R. H.
Operation and maintenance of remotely controlled gas-turbine units (A) ..... Je 92

HUCKERT, J. W.
Biography ..... Jl 112
Elected Fellow of ASME ..... Jl 112

HUDSON, WILBUR GREGORY
Obituary ..... F 144

HUGHES, FREDERICK GEORGE
Obituary ..... Ja 138

HUGHES, W. F.
On the theoretical analysis of a dynamic thermocouple: 2—the continuous area interface (A) ..... O 90

HULL, BURTON ELIAS
Obituary ..... Ja 138

HULL, E. H.
Control of oil-whip frequency ratio (A) ..... Je 98

HULSIZER, ROBERT LEON
Obituary ..... Je 131

HUMAN ENGINEERING. *See also* PHYSIOLOGY, REMOTE CONTROL
An engineer looks at human behavior .... Ag 34
Human factors evaluation of a keyset entry technique for frequency and channel selection (A) ..... Ag 84
Man-generated power ..... Jl 36
Manual attitude control in space—arrangement of controls (A) ..... Ag 85
What size access? (A) ..... Mr 89

HURST, T. B.
Industrial boiler design ..... Mr 52

HWANG, CHINTSUN
Thermal stresses in an elastic, work-hardening sphere (A) ..... O 94

HYDRAULIC CONTROL. *See* VALVES

HYDRAULIC DRIVES
Clutch-fluid coupling-hydraulic torque converter (D) ..... My 98
Hydraulic transmission for tractors (A) ..... Je 76
Hydraulics: standard components .... My 51

HYDRAULIC FLUIDS
Hydraulic fluid for low-temperature use (A) ..... Ja 61

HYDRAULIC MOTORS. *See* HYDRAULIC DRIVES

HYDRAULIC TURBINES. *See also* GOVERNORS, INSTRUMENTS—TURBINE-SUPERVISING, VIBRATION
Centrifugal pumps used as hydraulic turbines (A) ..... Mr 98
Hydraulic turbines symposium (A) ..... N 96
Reduction of turbine runner vibration and noise (A) ..... Je 95
Reversible pump-turbines at Niagara Falls ..... Mr 74, (D) O 98
Selection of the hydraulic turbines for the Mammoth Pool Project (A) ..... Je 96
Tidal-power turbines (A) ..... F 97

HYDRAULICS. *See also* SURGE VESSELS
ASME Transactions quarterlies: changes for Hydraulic Division papers ..... Ap 140
Freeman Fellowship for study or research in hydraulics ..... Ja 130
Hydraulic instability in a natural circulation loop with net stream generation at 1000 psia (A) ..... N 99

HYDRODYNAMICS. *See* FLOW OF FLUIDS

HYDROFOILS. *See* SHIPS

I

IBELE, W. E.
Certain thermodynamic and transport properties of the atmospheres of Venus, Mars, and Jupiter (A)..... My 94

IBERALL, A. S.
Precise measurement of clothes insulation during controlled operation of the human (A)..... Ap 112

IHRIG, H. K., JR.
Experimental determination of statistical properties of two-phase turbulent motion (A)..... My 90

ILLG, WALTER
Note of the calculation of the strength of specimens containing fatigue cracks (A)..... Ap 112

IMPACT. *See* RAILROAD CARS, VIBRATION

IMPELLERS. *See* CAVITATION

INDUSTRIAL FILMS..... Ja 126, F 130, My 112, Je 111, N 120, D 107

INDUSTRIAL FURNACES. *See also* HEAT-TREATMENT
Protecting industrial furnaces from explosions (A)..... Ap 108

INDUSTRIAL PRODUCTIVITY
Productivity—the great commitment ..... D 60

INDUSTRIAL TRAINING
Process simulation units for training (A)..... Mr 100
Training on a process simulator (A)... Mr 101

INDUSTRIAL TRUCKS
Automatic line-following truck (A)..... S 88
Maintenance considerations for electric-powered industrial trucks (A)..... Jl 74
Maintenance-control procedures for industrial lift trucks (A)..... Jl 73

INDUSTRY
Feedback....consumer to factory..... Ja 41, (D) Je 103
How American business can recapture its pioneering spirit (A)..... Jl 113
Industrial water..... Ja 31
The next decade in management (A).... F 86
Some attitude and personality characteristics of engineers in industry (A) ..... Ap 112
Tests and inspections—are you getting the plant you want, and paid for? (A) ..... Jl 74
Water management in industry..... Ja 33

INFRARED. *See also* GAGES
New temperature-sensing system for infrared radiation (A)..... Ap 92

INSPECTION. *See also* AUTOMATION, FORGINGS, GAGES, NONDESTRUCTIVE TESTING, WELDING
Automatic inspection (A)..... F 86
X-ray metal sorting (A)..... Jl 57

THE INSTITUTION OF MECHANICAL ENGINEERS
Calendar of meetings..... F 125, S 109, N 118

INSTRUMENTS. *See also* ELECTRIC ANALOGY, PETROLEUM-WELL EQUIPMENT
Barometric altitude—the problem, solution, and altimeter design (A)..... S 93
Effect of scale form on the speed and accuracy of scale reading (A)..... Ag 85
Metrology course to be established at George Washington University..... N 115
New fail-safe compensated altimeter (A)..... S 94
Packaging and handling of precision instruments..... Ag 39

INSTRUMENTS—FLUID-DENSITY
Development of a continuous fluid density measuring device (A)..... Ag 84

INSTRUMENTS—PRESSURE
Multipoint electronic manometer system for low-pressure hypersonic wind tunnels (A)..... Ja 66
Response of a pressure-sensing system (A)..... Ap 112

INSTRUMENTS—TEMPERATURE. *See also* EARTH SATELLITES
Expendable immersion thermocouple (A)..... S 77
Measurement techniques in heat transfer (a literature review)..... Ag 57
New sensitive temperature detector for use in high pressure fluid piping (A)... Ap 104
On the theoretical analysis of a dynamic thermocouple: 2—the continuous area interface (A)..... O 90
Temperature measurement in moving fluids (A)..... My 96
Temperature regulation in a bio-satellite (A)..... O 87

INSTRUMENTS—TURBINE-SUPERVISING
New runaway speed limiter for Kaplan turbines (A)..... Ja 68

INSTRUMENTS—VIBRATION
High-speed rotor balancing (A)..... Mr 84

INSULATION. *See* ELECTRICAL INSULATION

INTERNATIONAL INDUSTRIAL CONFERENCE, 1961..... My 111

INTERNATIONAL RELATIONS
Engineer in international affairs. F 54, (D) S 101
International co-operation (Ed)..... F 53

INVESTMENT CASTINGS. *See* DIE CASTING

IRESON, W. G.
Business education for engineers..... Mr 63

IREY, GEORGE WOODBURY
Obituary..... Ap 152

IRISH, S. R.
How to control research and engineering..... Je 46

IRMAY, S.
Accelerations and mean trajectories in turbulent channel flow (A)..... Je 96

IRON AND STEEL. *See* CORROSION

IRON AND STEEL INDUSTRY
Iron-ore beneficiation (A)..... D 67

IRON AND STEEL MANUFACTURE. *See also* BLAST FURNACES
"Instant" steel (A)..... Je 78

IRON AND STEEL PLANTS
Electric arc furnaces for British steel plant (A)..... Mr 94
New rod mill (A)..... Ap 100

IRVINE, T. F., JR.
Certain thermodynamic and transport properties of the atmospheres of Venus, Mars, and Jupiter (A)..... My 94
Laminar skin friction and heat transfer on flat plates with wedge-shaped grooves in flow direction (A)..... F 109
Review of heat-transfer literature, 1959 ..... Ag 47
Thermal conductivity and Prandtl number of carbon dioxide and carbon-dioxide air mixtures at one atmosphere (A)..... O 88

IRWIN, H. D.
Engineering application of digital computers..... Ja 48

ISENHOWER, JODIE
Materials handling maintenance work (A)..... Ag 83

J

JACKSON, FREDERICK RAYMOND
Obituary..... Ap 152

JACOBS, D. L. E.
Economic selection of steam and power supplies for refineries and petrochemical plants (A)..... Ap 102

JACOBSON, FRANK FRANZ
Obituary..... Jl 122

JAEGER, CHARLES
Review of surge-tank stability criteria (A)..... Mr 98

JAFFA, BERNARD JOSEPH
Obituary..... N 139

JAFFE, WILLIAM J.
Managing the professional employee (A)..... S 92

JANSSEN, J. E.
Thermal comfort in space vehicles (A) ..... My 93

JASKI, F. E.
Reversible pump-turbines at Niagara Falls..... Mr 74, (D) O 99

JASTRZEBSKI, ZBIGNIEW D.
Nature and properties of engineering materials (BR)..... My 99

JAUNZEMIS, W.
Transient thermal stresses in a semi-infinite slab (A)..... F 113

JAY, D. J.
Levacars: why and how?..... S 62

JEFFERIES, R. S.
Horsepower to heat the nation (A)..... Jl 75

JEFFERIS, G. C.
Effect of operating variables on the stack emission from a modern power station boiler (A)..... F 111

JEHEBER, RODRIGUE ALBERT
Obituary..... Ap 152

JENKS, GLEN FAY
Obituary..... Ap 152

JENSEN, ALLEN H.
Biography..... Ag 125
Nominated for Vice-President..... Ag 125

JENSEN, J. E.
Materials below −100 F (D)..... Ag 95

JENSEN-GAARD, J.
Moisture accumulation in aircraft sound-proofing and insulation (A)..... Ag 81

JEPSON, J. W.
Criteria for design of foundations for precision tracking radars considering dynamic response (A)..... My 88

JET PROPULSION. *See* AIR TRANSPORT

JEWSON, STAN
The low level economizer—the problem..... Je 65

JOBE, R. G.
Pump standardization...a user's concept..... F 57

JOHNSON, BRADLEY S.
Obituary..... O 142

JOHNSON, DANIEL CALVIN
Obituary..... Mr 138

JOHNSON, K. L.
Note on the influence of elastic compliance on sliding friction in ball bearings (A)..... Je 98

JOHNSON, P. A.
Design and construction engineers span canyon between abstract theory and concrete reality (C)..... D 96

JOHNSSON, STIG
Lateral forces between wheels and rails —an experimental investigation (A) ..... Jl 78

JOHNSTON, JAMES P.
Turbulent boundary layer at a plane of symmetry in a three-dimensional flow (A)..... My 89

JOHNSTONE, L. M.
Experiences with hydraulic prime-mover controls (A)..... Je 96

JONES, A. R.
Another step in water-reactor plant technology (A)..... Mr 100

JONES, BASSETT
Obituary..... My 138

JONES, D. W.
Thermal-conductivity studies with the Powell method (A)..... O 86

JONES, DAVID TODD
Obituary..... Mr 139

JONES, J. B.
Biography..... Ag 126
Nominated for Director..... Ag 126

JONES, M. L.
Protecting industrial furnaces from explosions (A)..... Ap 108

JOPLIN, J. L.
Design of semipermanent gas compressor stations (A)..... D 90

JORTNER, J.
Mission and state-of-the-art effects on rocket feed system comparison (A).... Ag 80

JU, F. D.
On the Airy stress functions of plane dislocation problems (A)..... O 89

JUHASZ, S. I.
Named editor of *Applied Mechanics Reviews*..... Mr 128

K

KADANOFF, LEO P.
Radiative transport within an ablating body (A)..... N 101

KAISER, RICHARD EUGENE
Obituary..... My 138

KALINSKE, A. A.
Twin throat venturi: a new fluid-flow measuring device (A)..... Ja 72

KALMAN, R. E.
New results in linear filtering and prediction theory (A)..... N 108

KALPAKCIOGLU, SEROPE
On the mechanics of shear-spinning (A). Jl 68

KALABA, ROBERT
Reduction of dimensionality, dynamic programming and control processes (A) ..... N 107

KAMP, E. J.
Maintenance of bulk material conveying equipment (A)..... Jl 74

KANE, T. R.
Axially symmetric extensional vibrations of a circular disk with a concentric hole (A)..... Mr 106

KANIGEN PROCESS. *See* METAL COATING

KANNER, GIDEON
Relativity and the mechanical engineer (D)..... Ag 91

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

KARLBY, HENNING
Study of viscosity effect and its compensations on turbine-type flowmeters (A) ... F 112

KARUNES, B.
Plastic-wave propagation effects in transverse impact of membranes (A) ... F 114

KASSNER, RUDOLF R.
Performance of the ducted rocket (A) ... S 95

KATZ, ADOLPH
Analog computer and its application in the rubber and plastics industry (A) ... D 87

KAUFFMANN, W. M.
Design application of engine-driven balanced-opposed gas compressors for pipeline and process installations (A) ... D 88

KAYAN, CARL F.
AAAS Section M (Engineering) in operation SCUDS reviews national and international aspects of systems of units (A) ... F 126
Biography ... Jl 110
Elected Fellow of ASME ... Jl 110
Effect of transient loads on the refrigerated-space temperature of a cooling complex (A) ... Mr 105
Toward resolution of the chaos and confusion in our systems of units (A) ... Ag 82

KAYE, J.
Influence of sound on free convection from a horizontal cylinder (A) ... N 98

KAYS, W. M.
Summary of experiments on turbulent heat transfer from a nonisothermal flat plate (A) ... My 95

KEEN, W. H.
Navy approach to the development of airframe structural design control requirements (A) ... S 92

KEGG, R. L.
New test method for determination of spinnability of metals (A) ... Jl 68

KELLER, RALPH
Obituary ... Mr 139

KELLNER, J. M.
Hydraulic wall-anchored drill collar (A) ... D 93

KELLY, JOHN C. R.
Thermoelectric power ... Jl 40

KEMENY, G. A.
Heat transfer and pressure drop in an annular gap with surface spoilers (A) ... N 101

KEMPF, VERN
Industrial lighting (A) ... Jl 74

KENNEDY, MATTHEW EDWIN
Obituary ... F 144

KERLIN, W. W.
Gear and bearing lubrication in extreme environments with polyphenyl ethers (A) ... D 84

KERR, TOMAS HERRON
Obituary ... S 124

KESSLER, G. W.
Automation—boiler operation ... N 68

KESSLER, L. H.
Application of internal-gear rotary pumps to viscous liquid service (A) ... Je 95

KIENAST, W. F.
Noise-abatement methods in meter and regulator stations (A) ... D 92

KIND, C.
Behavior of gas turbine combustion chambers while burning different fuels (A) ... Je 92

KINEMATICS
Approximate synthesis of spatial linkages (A) ... F 113
Kinematics; a German-English glossary ... D 49
Refinement of finite difference calculations in kinematic analysis (A) ... F 107
Unified criterion for the degree of constraint of plane kinematic chains (A) ... F 113

KING, HAROLD MERRIAM
Obituary ... Ag 140

KING, R. C.
The low level economizer—a design study ... Je 66, N 111

KING, T. F.
Mechanical design of 150-ft-diam metal space frame radome (A) ... My 88

KING, VERNON C.
Obituary ... S 124

KISHI, JAMES S.
Biography ... Ja 110
Receives Old Guard Prize ... Ja 110
Wings that won't stall? ... Ap 81

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

KISPERT, E. G.
Recent boiler design practice (A) ... Ap 103

KITTREDGE, C. P.
Centrifugal pumps used as hydraulic turbines (A) ... Mr 98

KLINE, STEPHEN J.
Biography ... Ja 108
Receives Melville Award ... Ja 108
Summary of experiments on turbulent heat transfer from a nonisothermal flat plate (A) ... My 95

KNAFF, P. ROBERT
Manual control of undamped systems subjected to force-coupled accelerations (A) ... N 109

KNOERNSCHILD, E. M.
Radial turbine, for low specific speeds and low-velocity factors (A) ... Ap 106

KNOWLES, ASA S.
Receives honorary DE degree ... D 103

KNOWLES, D. W.
Development of a 3500 hp marine gas turbine (A) ... Ja 68

KNOWLTON, P. H., JR.
The fuel cell (D) ... Mr 108
Thermal efficiency—40 per cent or better ... N 58

KOBAYASHI, S.
Critical comparison of metal-cutting theories with new experimental data (A) ... Ja 71
Metal cutting (a review of the literature for 1959) ... S 68
Role of friction in metal cutting (A) ... Ja 71
Some problems of press forging lead and aluminum (A) ... Mr 96

KOHN, E. O.
Marine and mobile applications of industrial gas turbines (A) ... Ap 106

KONIG, F. K.
Operational experience with a 15-mw gas turbine generator in an iron and steel works (A) ... Je 94

KOSKI, ELMER JACOB
Obituary ... O 142

KOTZ, S. E.
Application of internal-gear rotary pumps to viscous liquid service (A) ... Je 95

KOZA, R. H.
Development of United Air Lines' jet transport galleys (A) ... Ag 81

KRAMER, ALEXANDER EMANUEL
Obituary ... My 138

KRAPP, M. L.
Operation and maintenance of remotely controlled gas-turbine units (A) ... Je 92

KRAUS, ALLAN D.
Efficiency of finned annular passages (A) ... O 86

KRAUS, H.
Stresses in thin-walled pressure vessels with ellipsoidal heads (A) ... S 92

KRAUSE, IRVIN
Refinement of finite difference calculations in kinematic analysis (A) ... F 107

KRAUTHEIM, WILLIAM CHARLES
Obituary ... Je 131

KRENDEL, E. S.
Man-generated power ... Jl 36

KULLMER, FRANK
Obituary ... N 139

KUNZNICK, G. A.
Unique aspects of the F4H airplane reliability effort (A) ... Ap 107

KUPSTAS, JOHN
Obituary ... Ag 140

KURTZ, WILLIAM L.
Decade of electric utility fuel experience (A) ... D 82

KURZWEIL, FRED, JR.
Dynamic synthesis of higher-order, optimum saturating systems (A) ... N 107

KUZARA, THOMAS FRANCIS
Obituary ... D 131

L

LABISSONIERE, ALFRED
Obituary ... Ap 152

LABORATORIES. *See* TESTING MACHINES

LACKMAN, LESLIE
Buckling of circular cones under axial compression (A) ... O 90

LACROIX, ARTHUR JOSEPH
Obituary ... Mr 139

LADING PROTECTION. *See* RAILROAD CARS

LAHMAN, CHARLES JUNIOR
Obituary ... My 138

LAMINATES
High-temperature laminates (A) ... F 88

LANDAU, H. G.
Thermal stress in a viscoelastic-plastic plate with temperature-dependent yield stress (A) ... Mr 106
Transient and residual thermal stresses in an elastic-plastic cylinder (A) ... S 98

LANDZBERG, A. H.
Stability of a turbine-generator rotor including the effects of certain types of steam and bearing excitations (A) ... O 88

LANGER, B. F.
Biography ... F 140
Elected Fellow of ASME ... F 140
Stresses in thin-walled pressure vessels with ellipsoidal heads (A) ... S 92

LANNING, H. K.
Increased cushioning capacity—a requirement of tomorrow's freight car (A) ... Ap 110

LANSING, WARNER
Dynamic loads during nose tow catapulting (A) ... S 96

LARSEN, F. W.
Effect of aspect ratio and tube orientation on free-convection heat transfer to water and mercury in enclosed circular tubes (A) ... Ag 84

LATHAM, A. J.
Improving man's workload in space vehicle systems: methodology and measurement (A) ... Ap 108

LATHES. *See* MACHINE TOOLS

LAUNCHING SYSTEMS. *See* AIRPLANES

LAUTZENHEISER, C. E.
Ultrasonic testing (A) ... D 89

LAWRENCE, JOHN H.
Obituary ... Mr 139

LEBRETON, A. F.
Development associated with the supercritical-pressure turbine for Eddystone Station Unit No. 1 (A) ... Ap 105

LEE, E. B.
Design of optimum multivariable control systems (A) ... N 107

LEE, E. H.
Contact problem for viscoelastic bodies (A) ... Je 90

LEE, HO CHONG
Forced lateral vibration of a uniform cantilever beam with internal and external damping (A) ... O 89

LEE, S. Y.
Improvement of the power efficiency of a hydraulic control system by the use of a gain compensated control valve (A) ... N 108

LEE, W. F. Z.
Study of viscosity effect and its compensations on turbine-type flowmeters (A) ... F 112

LEES, SIDNEY
Experimental verification of a design basis for positional servomechanisms (A) ... Ja 66

LEISSA, A. W.
Method for investigating certain eigenvalue problems of the buckling and vibration of plates (A) ... O 92

LEITH, W. C.
Some corrosion effects in accelerated cavitation damage (A) ... F 108

LEON, G. L.
Analysis of solar-furnace performance in mechanical testing at extremely high temperatures (A) ... Je 91

LEPPERT, G.
Forced-convection heat transfer from an isothermal sphere to water (A) ... N 102

LEUKEN, LAWRENCE FRANCIS
Obituary ... Mr 139

LEVANDUSKY, J. A.
Research problems relating to production and quality control of ultrapure feedwater for Eddystone Station (A) ... F 106, Ap 104

LEVAPADS
Levacars: why and how? ... S 62

LEVENTHAL, E. L.
Solar turbo power-plant design (A) ... Ap 111

LEVIN, EUGENE
Elastic equilibrium of a plate with a reinforced elliptical hole (A) ... F 113
Structural weight approximation for a bell-nozzle divergent section (A) ... Ap 113

LEVY, M. J.
Free expansion of dry and moist air (A) ... Ag 82

LEVY, S.
Hydraulic instability in a natural circulation loop with net stream generation at 1000 psia (A) ..... N 99

LICHT, LAZAR
Extension of the conducting sheet analogy to externally pressurized gas bearings (A) ..... D 82
Study of the stability of externally pressurized gas bearings (A) ..... O 88

LICHTENFELS, F. L.
Process simulation units for training (A) ..... Mr 100
Training on a process simulator (A) ... Mr 101

LIEBERMAN, P.
Pressure oscillations in a water-cooled nuclear reactor induced by water-hammer waves (A) ..... Je 97

LIEBLEIN, SEYMOUR
Incidence and deviation-angle correlations for compressor cascades (A) ..... My 89

LIGHT
Communication by piped light (A) ..... D 72

LIGHTING
Industrial lighting (A) ..... Jl 47

LILEY, P. E.
Smoothed pressure—volume—temperature data for water in the critical region derived from experimental measurements (A) ..... N 98
Survey of P-V-T- data for water in the critical region (A) ..... N 98

LIND, EDWARD R.
Pipe stresses when drilling from a floating vessel (A) ..... D 93

LINDER, CLARENCE H.
Named president of the American Institute of Electrical Engineers ..... Mr 120

LINDROS, ERNEST E.
Modern developments of centrifugal pumps (A) ..... D 92

LING, CHIH-BING
Stresses in a slab having a spherical cavity under circular bending (A) ..... F 113

LING, S. C.
Heat-transfer characteristics of hot film sensing element used in flow measurement (A) ..... My 90

LINKAGES. *See* KINEMATICS

LIPKIS, R. P.
Temperature control system for the Atlas Able-4 lunar satellite (A) ..... S 94

LIPPERT, J. W.
Piston-ring design and application practice for modern large-bore diesel and gas engines (A) ..... Jl 76

LIQUEFIED PETROLEUM GASES
"Operation Cryogenics" (A) ..... D 68
Transporting liquid methane (A) ..... Mr 95

LIQUID METALS. *See also* CAVITATION
Heat transfer to liquid metals with variable properties (A) ..... My 93

LISTER, ALFRED
Obituary ..... Jl 122

LITZLER, C. A.
New tire-reinforcing materials ..... F 76

LIU, H. W.
Crack propagation in thin metal sheet under repeated loading (A) ..... Jl 73

LO, HSU
Effect of small hub-radius change on bending frequencies of a rotating beam (A) ..... O 94

LOCKERY, H. E.
Theory and applications of strain-gage torque-measuring devices (A) ..... My 96

LOCKHART, HAROLD ALBURN
Obituary ..... N 139

LOCKWOOD, HAROLD JOHN
Obituary ..... Ag 140

LOCOMOTIVES. *See also* ADHESION (RAIL), WHEELS
Lateral forces between wheels and rails—an experimental investigation (A) .... Jl 78
Progress in railway mechanical engineering 1958–1959 ..... F 66

LOCOMOTIVES—DIESEL
Nozzle design cuts locomotive costs (A) ..... Ag 87

LOCOMOTIVES—DIESEL-ELECTRIC
Application of diesel engines to industrial diesel-electric locomotives (A) ... Mr 104

LOCOMOTIVES—ELECTRIC. *See* ELECTRIC MOTORS

LOCOMOTIVES—STEAM
Locomotive built by British Railways (A) ..... My 84

LOEB, ALFRED M.
Effect of the method of compensation on hydrostatic bearing stiffness (A) ..... D 85

LOEB, W. A.
Heavy-water-moderated nuclear power plants (A) ..... Mr 100

LOEFFLER, ALFONS GEORG
Obituary ..... Ja 138

LOMAS, W. R.
Safety considerations in the design of flight control systems for Navy aircraft (A) ..... S 95

LOMBARDI, C.
Burnout in turbulent flow—a droplet diffusion model (A) ..... N 99

LONDON, A. L.
Heat-transfer and flow-friction characteristics of crossed-rod matrices (A) ..... My 92

LONG, GEORGE ALEXANDER
Obituary ..... Ja 138

LONG, W. F.
Code testing of large boilers—input-output or heat-loss method? (A) ..... N 106

LONGSTRETH, M. O.
Uniform two-way orientation of plastic films (A) ..... F 105

LOPEZ, H.
Coefficients of discharge of a quadrant-type concentric orifice meter, with flange, radius, and corner taps (A) .... Ja 72

LORENTZ, R. E., JR.
Eddystone research story (A) ..... Ap 104

LOUGH, JACK SIMMONS
Obituary ..... N 139

LOW-TEMPERATURE MATERIALS
Handling cryogenic materials (A) ..... Ag 71

LOW-TEMPERATURE RESEARCH
Cryogenic gyroscope (A) ..... Mr 78
"Cryogenics," a new journal dealing with low-temperature engineering and research ..... D 108
Materials below −100 F .... Ap 60, (D) Ag 94
"Operation Cryogenics" (A) ..... D 68
Tensile-test cryostat (A) ... N 91

LU, PAU-CHANG
Combined free and forced-convection heat-generating laminar flow inside vertical pipes with circular sector cross sections (A) ..... F 110

LUBRICANTS AND LUBRICATION. *See also* BEARINGS
Assessment of the value of theory in predicting gas-bearing performance (A) ..... D 83
Bonded dry-film lubricant (A) ..... Jl 63
Control of oil-whip frequency ratio (A). Je 98
Effect of the method of compensation on hydrostatic bearing stiffness (A) ..... D 85
Extension of the conducting sheet analogy to externally pressurized gas bearings (A) ..... D 82
Gear and bearing lubrication in extreme environments with polyphenyl ethers (A) ..... D 84
Grease lubrication studies with plain journal bearings (A) ..... D 83
Improved analytical solution for self-acting, gas-lubricated journal bearings of finite length (A) ..... D 84
Improved solid lubricant ups load-bearing capacity (A) ..... Jl 62
Laboratory gas engine lubricant study (A) ..... Jl 76
Lubrication at high temperatures with vapor-deposited surface coatings (A) .. D 83
Oil tester (A) ..... D 76
Solid films—lubricants for extreme environment (A) ..... D 88
Spectrographic analysis of diesel-engine lubricating oils by the rotating-platform method (A) ..... Jl 77
Theoretical investigation of pressure depression in externally pressurized gas-lubricated circular thrust bearings (A) ..... D 83
Theory of lubrication with turbulent flow and its application to slider bearings (A) ..... F 113
Timed oil injection (A) ..... Ag 67
Transaxle lubricant for automobiles (A) ..... Mr 91

LUECKEL, WILLIAM JOHN
Obituary ..... Ja 138

LUNDGREN, C. W.
Charts for determining size of surge suppressors for pump-discharge lines (A) ..... Mr 98

M

MCADAMS, W. H.
Receives American Institute of Chemical Engineers Founders Award ..... Ja 125

MACALISTER, ROBERT NORMAN
Obituary ..... Mr 139

MACALUSO, C A.
Correlation of turbocompressor performance with various gases (A) ..... Je 98

MCCRACKEN, WILLIAM CLYDE
Obituary ..... F 144

MCCUTCHAN, J. W.
Prediction of human thermal tolerance when using a ventilating garment with an antiexposure suit (A) ... My 95

MACDONALD, A. G.
Some problems of press forging lead and aluminum (A) ..... Mr 96

MCDONALD, W. J.
Deformation process in metal-cutting (A) ..... Mr 96

MCDONOUGH, MARK J.
One shaft versus two: gas-turbines in gas-line pumping ..... O 46

MCENTIRE, JACK A.
Determination of boiling film coefficient for a heated horizontal tube in water-saturated wick material (A) ..... N 105

MCEVILY, A. J., JR.
Note of the calculation of the strength of specimens containing fatigue cracks (A) ..... Ap 112

MCGARRAH, R. E.
Feedback...consumer to factory ..... Ja 41, Je 103

MCGRATH, DANIEL F.
Maintenance experience with Boeing gas turbine engines (A) ..... S 92

MCGUFFEY, J. R.
Graphitization failures in piping (AC) ... F 119

MACHINE DESIGN
Design by quantitative factor of safety (A) ..... F 107
Design engineering (Ed) ..... My 35
Design for motivation (A) ..... Jl 105
Fabrication by explosives ..... My 48
Hydraulics: standard components .... My 51
Welding processes ..... My 43

MACHINE-SHOP PRACTICE
Automatic precision contouring (A) .... F 87
"Economatic" transfer machines (A) ... F 91
Transfer-machine finishing (A) ..... Je 83

MACHINE-TOOL INDUSTRY
Machine-tool recovery in 1959 (A) ..... Je 76

MACHINE TOOLS
Automatically positioned jig borer (A) ..... D 80
Boring and milling machine (A) ..... My 84
Boring lathe for heavy shafting (A) ..... D 81
Crankpin-turning attachment (A) ..... Ap 100
Design concept of welded-steel lathe (A) ..... Mr 96
Determination of cutter trajectories for contoured turbine buckets (A) ..... Ja 71
"Dynatrol" vertical turret lathes (A) ... Ja 57
Flexible dial machine (A) ..... D 66
Free machining steel
Part I—Tool-life characteristics of resulfurized steel (A) ..... Jl 68
Part II—Tool-life characteristics of leaded steel (A) ..... Jl 68
Heavy-duty lathe (A) ..... O 70
Hydraulic tool clamping (A) ..... N 96
Inspecting hole-center locations (A) .... O 71
Machine-tool innovations (A) ..... Ja 56
Numerical control developments (A) .... Je 99
Rigidity and stability of machine tools (A) ..... Ag 89
Russia: a new lathe every 15 minutes ... O 43
Simultaneous development of machinery and tools (A) ..... Ag 88
Tape-controlled jig borer (A) ..... Jl 67
Three-axis numerical control of a precision boring machine (A) ..... Jl 69
Tools and machines—simultaneous development ..... N 49
Twin automatic lathe (A) ..... Jl 66
Versatile vertical machine (A) ..... My 76

MACHINING. *See* METAL CUTTING

MCILROY, J. B.
Relationship of coal-ash viscosity to chemical composition (A) ..... F 106

MACIOS, T. W.
Supersonic-wind-tunnel air-drying-system design (A) ..... Ap 113

MACKAY, D. B.
Solar turbo power-plant design (A) ..... Ap 111

MCKINNEY, M. O., JR.
Short-field airliners ..... O 53

MCKISSICK, DALE C.
Practical aspects of the heat-treatment of the high-speed steels (A) ..... D 88

MACLAREN, DOUGLAS BRUCE
Obituary ..... N 140

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

McLEAN, H. D.
Report on 9000-hr operation of marine propulsion gas turbine in the John Sargeant (A) ..... Je 93

McLENEGAN, D. W.
Biography ..... Jl 111
Elected Fellow of ASME ..... Jl 111

MADSEN, JACK
The DC-8 seat—passenger protection with structural economy (A) ..... Ag 81

MAGNETOHYDRODYNAMICS
Magnetohydrodynamic generator (A) ... My 73
Magnetohydrodynamic power generation (A) ..... Ja 52

MAH, HENRY
Obituary ..... My 138

MAHER, A. M.
Modular design (A) ..... Ag 82

MAINTENANCE. *See also* AIRPLANE ENGINES, AIRPLANES, GAS TURBINES, MATERIALS HANDLING, TEXTILE INDUSTRY, WELDING
Maintenance-control center (D) ..... F 120
Maintenance men—important today, a necessity tomorrow (A) ..... Jl 74

MAKRIS, J. S.
Fabrication and annealing factors affecting grain size of 18Cr8Ni-Ti superheater materials in steam boilers (A) .. Mr 102

MALAKOFF, JAMES L.
Dynamic loads during nose tow catapulting (A) ..... S 96

MALANOSKI, STANLEY B.
Effect of the method of compensation on hydrostatic bearing stiffness (A) ..... D 85

MALONEY, P. W.
Rate your supervisor—a program for supervisory self-development (A) ..... D 91

MANAGEMENT. *See also* COST ACCOUNTING, DISTRIBUTION CONTROL, EDUCATION, MERIT RATING, PRODUCTION CONTROL, RESEARCH
ASME President Cisler in CIPM address describes U.S. management's role in a decade of world change ..... Mr 114
Classics in management (BR) ..... D 97
Developing managerial abilities ..... Ja 29
Engineering management as related to profit and creativity (A) ..... F 133
Engineering Management Conference, Chicago, 1960 ..... Ag 113
Engineering Management Conference explores future of management ..... N 123
How to control research and engineering ..... Je 46
Managing the professional employee (A) ..... S 92
Mathematical models for analysis of job shop capital equipment (A) ..... Ag 88
The next decade in management (A) ... F 86
Rate your supervisor—a program for supervisory self-development (A) .... D 91
SAM-ASME Management Engineering Conference, New York, 1960 ..... My 121
Utilizing industrial engineering in engineering (A) ..... Mr 97
The vital spot in management ..... N 46
Who should manage engineers? ..... S 54

MANGASARIAN, O. L.
Stresses in the plastic range around a normally loaded circular hole in an infinite sheet (A) ..... Je 90

MANLEY, L. W.
Laboratory gas engine lubricant study (A) ..... Jl 76

MANOS, P.
Analysis, results, and interpretation for radiation between some simply arranged gray surfaces (A) ..... N 101

MANPOWER
EJC Mission to Russia studies utilization of engineers and technicians ..... S 104
Institute for Defense Analyses meets with EJC ..... F 125

MANSON, S. S.
Extrapolation of families of curves by recurrence relations, with application to creep-rupture data (A) ..... Mr 103

MANTUS, MORTON
Dynamic loads during nose tow catapulting (A) ..... S 96

MANUFACTURING. *See also* AUTOMATIC CONTROL, RESEARCH
Are you considering numerical control? .. D 56
Automatic assembly ..... My 40
Russia: a new lathe every 15 minutes .. O 43
Youthful vigor at 75 (A) ..... Jl 60

MARIN, JOSEPH
Prediction of creep failure time for pressure vessels (A) ..... O 88

MARINE ENGINEERING. *See also* GAS TURBINES, STEAM TURBINES
Distinguishing aspects of marine engineering (A) ..... F 105
Gas turbine propulsion for hydrofoil boats ..... Je 48

MARKETING
Feedback...consumer to factory ..... Ja 41

MARKHAM, B. G.
Development and sea trials of marine Proteus engines for Brave Class fast patrol boats (A) ..... My 88
Rapid starting automatic gas-turbine generating plant for peak-load duty (A) ..... Je 91

MARKS, HARRY J.
Obituary ..... Ja 138

MARRIS, A. W.
Radial distributions of temporal-mean peripheral velocity and pressure for fully developed turbulent flow in curved channels (A) ..... F 109

MARSH, ARTHUR B.
Obituary ..... Mr 139

MARSHALL, T. A., JR.
Leaves to serve as ASTM executive secretary ..... O 108

MARTIN, L. D.
Biography ..... Ja 132
Elected Fellow of ASME ..... Ja 132

MARTINUZZI, P. F.
Gas-steam power generation (A) ..... Je 93

MARX, HENRY
Obituary ..... Mr 139

MASON, H. L.
Biography ..... F 139
Elected Fellow of ASME ..... F 139

MASS TRANSFER
Mass transfer, flow, and heat transfer about a rotating disk (A) ..... F 110
Sublimation mass transfer through compressible boundary layers on a flat plate (A) ..... F 109

MATCHETT, JAMES C.
Obituary ..... Ag 140

MATERIALS HANDLING. *See also* BELTING, INDUSTRIAL TRUCKS, LOW-TEMPERATURE MATERIALS
Amortization and determination of savings of materials-handling features (A) ..... Mr 106
Carload sugar handling (A) ..... N 89
Conveyer belting with fluted skirts (A) .. O 69
Cross-country conveyer (A) ..... F 90
Facilities for handling and welding assemblies in the machinery industry (A) ..... Mr 97
Lifting and tipping dump car (A) ..... O 84
Maintenance of bulk material conveying equipment (A) ..... Jl 71
The manipulator: its design and application ..... F 64
Materials handling maintenance work (A) ..... Ag 83
New dimension in materials handling —ideas, not hardware ..... Je 71
Packaging and handling of precision instruments ..... Ag 39
Power-and-free conveyer combination (A) ..... Ag 64
Safe conveyers ..... Jl 34
Safety in materials handling—an engineering approach ..... Jl 30
Switching cart conveyer (A) ..... Ap 93
Warehousing without pallets ..... My 67

MATHEMATICS. *See also* KINEMATICS
Approximate analysis of certain boundary-value problems (A) ..... Mr 106
Method of solution for the elastic quarterplane (A) ..... F 113
Motion and loading of a hinged ramp which supports a sliding mass (A) ..... F 114
New results in linear filtering and prediction theory (A) ..... N 108
Performance criterion for linear systems (A) ..... Ap 112

MATHENY, W. G.
Effect of scale form on the speed and accuracy of scale reading (A) ..... Ag 85

MATHEWS, R. T.
Climatic considerations in the design of air-cooled heat exchangers (A) ..... My 93

MATTHEWS, B. J.
Maintenance on pipeline gas turbines (A) ..... Ag 80

MATHUR, P. N.
Energy versus stress theories for combined stress—a fatigue experiment using a rotating disk (A) ..... Jl 71

MAVIS, F. T.
Problem areas in engineering education explored (A) ..... Mr 129

MAXFIELD, MARY E.
Heat stress and the industrial worker ... Je 57

MAXIN, R. M.
Tests and inspections—are you getting the plant you want, and paid for? (A) ..... Jl 74

MEASUREMENT. *See* INSTRUMENTS

MECHANISMS
Motion and loading of a hinged ramp which supports a sliding mass (A) ..... F 114
Some applications of the cycloid in machine design (A) ..... F 107

MEGAHAN, F. N.
Pilot-plant water studies for Eddystone Station (A) ..... Ap 105

MEHRINGER, F. J.
Low-cycle fatigue of two nickel-base alloys by thermal-stress cycling (A) ... Ja 74

MEKLER, L. A. (deceased)
Tube metal temperatures for structural design (A) ..... Ap 103

MELMAN, SEYMOUR
Russia: a new lathe every 15 minutes ... O 43

MELROSE, M. F.
Mobile reflectoscope inspection of railway car axles under rolling equipment on the Chesapeake and Ohio Railway Company (A) ..... Mr 103

MEMBRANES
Plastic-wave propagation effects in transverse impact of membranes (A) .. F 114
Rupture instability of plane membranes and solids (A) ..... S 98

MENDELSON, A.
Extrapolation of families of curves by recurrence relations, with application to creep-rupture data (A) ..... Mr 103

MENDLER, O. J.
Natural-circulation tests with water at 800 to 2000 psia under nonboiling, local boiling, and bulk boiling conditions (A) ..... N 102

MERCHANT, M. E.
Biography ..... Ja 108, Ag 130
Elected Fellow of ASME ..... Ag 130
Receives Richards Memorial Award .... Ja 108

MERENSKI, J. S.
Maintaining American Airlines' turbojet engines (A) ..... Ag 79

MERIT RATING
New system of merit ratings ..... D 38

MERRILL, C. F.
Solid films—lubricants for extreme environment (A) ..... D 88

MERTE, HERMAN, JR.
Pool boiling in an accelerating system (A) ..... N 103

MESSERE, W. E.
Investigation of periodic modes of sampled-data control systems containing a saturating element (A) ..... N 108

METAL CLEANING
Degreasing plants (A) ..... Je 88
Low-temperature metal cleaning (A) .... N 91

METAL COATING. *See also* RUBBER
Chemical nickel plating on a large scale by the Kanigen process (A) ..... Mr 105
Extrusion cladding (A) ..... Je 78
Mechanical plating system (A) ..... S 80
Plasma flame-spraying equipment development (A) ..... Mr 101
Sprayable plastic coating in water suspension (A) ..... S 85
Tungsten for high-temperature coatings (A) ..... Mr 87

METAL CREEP
Creep-rupture properties of 80 Ni-20 Cr alloys (A) ..... Mr 103
Extrapolation of families of curves by recurrence relations, with application to creep-rupture data (A) ..... Mr 103
Prediction of creep failure time for pressure vessels (A) ..... O 88
Role of atmosphere in the creep-rupture behavior of 80 Ni-20 Cr alloys (A) ..... Mr 102
Some observations on the extrapolation of high-temperature ferritic steel data (A) ..... Mr 102
Stability of metals under cyclic plastic strain (A) ..... Ja 73
Steady-state creep of a thick-walled cylinder under combined axial load and internal pressure (A) ..... Ja 73
Tensile and short-time creep properties of N-155 alloy sheets (A) ..... Ja 70

METAL CUTTING. *See also* MACHINE TOOLS
Adsorption of polar organic molecules on machined metal surfaces and properties of the resulting surface films (A) .. D 85
Cemented-oxide cutting tools; where they stand today (A) ..... D 88
Comparisons between the shearing properties of alpha-brass as derived from

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

METAL CUTTING (*continued*)
the cutting process and from static and impact torsion tests (A) ... Ja 71
Critical comparison of the metal-cutting theories with new experimental data (A) ... Ja 71
Cutting fluids (a review of the literature for 1959) ... S 72
Cutting-oil mist sprayer (A) ... Mr 94
Deformation process in metal-cutting (A) ... Mr 96
Electrolytic machining (A) ... F 94
High-temperature machining (A) ... D 69
Machinability of nodular cast irons—Part 1: Tool forces and flank adhesion (A) ... Jl 70
Metal cutting (a review of the literature for 1959) ... S 68
New developments in the theory of the metal-cutting process, 1—the ploughing process in metal cutting (A) ... Ja 70
Photoelastic analysis of machining stresses (A) ... Ja 70
Progress in boring and grinding (A) ... N 90
Role of friction in metal cutting (A) ... Ja 71

METAL DRAWING
Drawability of sheet aluminum alloy 5457 (A) ... Mr 96

METAL FAILURES. *See* METAL FATIGUE

METAL FATIGUE
Note of the calculation of the strength of specimens containing fatigue cracks (A) ... Ap 112
Organic compounds and metal fatigue (A) ... Ag 62

METAL FINISHING
Vibratory-finishing equipment (A) ... My 72

METAL FORMING
Correlation of bendability of materials with their tensile properties (A) ... Ja 70
Dishing metal with explosives (A) ... Je 88
Explosive forming used in production (A) ... D 69
Fabrication by explosives ... My 48
Flow turning to increase strength, save weight (A) ... My 96
Gas mixture for explosive forming (A) ... S 82
Mechanics of the sheet-bending process (A) ... Ap 113
Metal-forming under electronic sequencing (A) ... Je 99
Plastic working (a review of the literature for 1959) ... S 70

METAL ROLLING
Plutonium-alloy rolling mill (A) ... Je 77
Roll-force and torque coefficients for hot-strip steel mill (A) ... Ja 73

METAL SPINNING
Analysis of power spinning cones (A) ... Mr 97
New test method for determination of spinnability of metals (A) ... Jl 68
On the mechanics of shear-spinning (A) ... Jl 68

METAL TESTING. *See also* METAL CUTTING
Brittle fracture characteristics of a reactor pressure vessel steel (A) ... Jl 73
Crack propagation in thin metal sheet under repeated loading (A) ... Jl 73
Fracture of flat and curved aluminum sheets with stiffeners parallel to the crack (A) ... Jl 72
Simple metal-differentiating meter utilizes thermoelectric effect (A) ... Mr 90
Some observations on the extrapolation of high-temperature ferritic steel data (A) ... Mr 102
Survey of various special tests used to determine elastic, plastic, and rupture properties of metals at elevated temperatures (A) ... Mr 102

METAL TESTING—COMBINED-STRESS
Study of theories of fracture under combined stresses (A) ... Jl 73

METAL TESTING—CREEP
Multispecimen creep-testing machine (A) ... D 80

METAL TESTING—FATIGUE
Accelerated fatigue testing (A) ... S 79
Cyclic dependent stress relaxation of A-286 alloy (A) ... Ja 73
Energy versus stress theories for combined stress—a fatigue experiment using a rotating disk (A) ... Jl 71
Low-cycle fatigue of two nickel-base alloys by thermal-stress cycling (A) ... Ja 74
Micro-plastic strain hysteresis energy as a criterion for fatigue fracture (A) ... Jl 71
Strength of thick cylinders subjected to repeated internal pressure (A) ... Ap 102

METAL TESTING—RELAXATION
Relaxation of a cylinder on a rigid shaft (A) ... Ap 113

METAL TESTING—TENSION
Use of the center notch-tensile test to evaluate rocket-chamber materials (A) ... Jl 73

METALLURGY
Electron-beam zone refining (A) ... Ag 66
Fabrication and annealing factors affecting grain size of 18Cr8Ni-Ti superheater materials in steam boilers (A) ... Mr 102
Materials below −100 F ... Ap 60, (D) Ag 94
Recent advances in dispersion strengthened metal-metal oxide structures (A) ... Jl 73

METALS
Artificial metals and alloys (A) ... Ag 64
Conduction-electron momentum in metals (A) ... Ag 63
Hot-metal mixer (A) ... Jl 67, (correction) S 89
A review of metal-processing literature ... S 67

METHANE. *See* LIQUIFIED PETROLEUM GASES

METRIC SYSTEM
AAAS Section M (Engineering) in operation SCUDS reviews national and international aspects of systems of units (A) ... F 126
The metric system (C) ... Ja 118

METROLOGY. *See* INSTRUMENTS

MEYER, C. A.
Turbine-testing facility ... Jl 47

MICHALEC, G. W.
Gear-position error control (A) ... Ja 72

MIDGLEY, FREDERICK WILLIAM
Obituary ... D 131

MIKLOWITZ, JULIUS
Flexural stress waves in an infinite elastic plate due to a suddenly applied concentrated transverse load (A) ... O 95
Plane-stress unloading waves emanating from a suddenly punched hole in a stretched elastic plate (A) ... Ja 74

MIKULAK, JOHN
Facilities for handling and welding assemblies in the machinery industry (A) ... Mr 97

MILES, E. G.
Distributed suction boundary-layer control applied to axial fans (A) ... Ag 80

MILES, J. W.
On the annular damper for a freely processing gyroscope (A) ... F 114
On the response of an elastic half-space to a moving blast wave (A) ... O 95
Propagation of an impulse into a viscous-locking medium (A) ... O 95

MILLING
Milling torquemeter of planetary-gear design (A) ... Jl 70
Steam-turbine buckets automatically milled ... Ja 44

MILLS, A. W.
Advanced chemically fueled power supply for space vehicles (A) ... Ag 78

MILLS, B. D., JR.
Relativity and the mechanical engineer ... Ap 78, Ag 91, 92

MILLS, EARL J.
Prediction of creep failure time for pressure vessels (A) ... O 88

MILLS, H. L.
Administration of research and development projects (A) ... Mr 97

MILLS, R. G.
Combined steam turbine-gas turbine plant for marine use (A) ... My 88
1100-hp gas turbine for marine applications (A) ... Je 94

MILSUM, J. H.
Requirements for a hybrid analog-digital computer (A) ... Ja 66

MINDLIN, R. D.
Dispersion of flexural waves in an elastic, circular cylinder (A) ... Mr 106
Extensional vibrations and waves in a circular disk and a semi-infinite plate (A) ... S 98

MINING. *See* SULFUR MINING, WIRE ROPE

MIRELES, S.
Coefficients of discharge of a quadrant-type concentric orifice meter, with flange, radius, and corner taps (A) ... Ja 72

MISKIMEN, T. A.
Results of steam sampling nozzle tests on evaporator vapor (A) ... F 110

MISSILES
The mechanical engineer in the missile-satellite field ... My 129
Reliability control ... Je 54

MITCHELL, J. W.
Heat-transfer and flow-friction characteristics of crossed-rod matrices (A) ... My 92

MITCHELL, T. P.
Stress distributions analyzed in bispherical co-ordinates (A) ... O 94

MITTENBERGS, A. A.
Inspecting taper threads—a new technique ... Ag 43

MODELS. *See also* DEFORMATION, SIMULATION, TOWING TANKS
Application of model studies to industrial gas-flow systems (A) ... Ap 110
Models—a basic tool in process-plant design (A) ... D 87
On a dynamical Saint Venant principle (A) ... F 114
Photoelastic model engineering ... Jl 43
Plastic production-die models (A) ... My 81
Use of transparent scale models in the design of dust-collector and gas duct systems for coal-burning electric-generating stations (A) ... F 111

MOISTURE. *See* AIR CONDITIONING

MOLLICK, L.
Theory of the ideal design of a compound vessel (A) ... Ap 103

MOLOKIE, STEPHEN WINFRED
Obituary ... My 138

MONKMEYER, P. L.
Quadrant edge orifice—a fluid meter for low Reynolds number (A) ... F 112

MONORAILS. *See* RAILROADS

MOON, I. MAN
High-efficiency flow diffusion by means of suction boundary-layer control (A) ... S 97

MOORE, WILLIAM JAMES
Obituary ... D 131

MOOREHEAD, E. A.
Application and range of the tuned housing vibration damper (A) ... Ag 87

MOREELL, BEN
Biography ... Ja 105
Honorary Member of ASME ... Ja 105

MORGAN, A. I., JR.
Wall temperature and heat flux measurement in a round tube (A) ... O 86

MORGAN, H. M.
Interaction of textile structures and high-speed textile processes (A) ... Ap 111

MORGAN, ROBERT LEWIS
Obituary ... N 140

MORGESON, DARRELL WILLIAM
Obituary ... Je 132

MORI, HARUO
Theoretical investigation of pressure depression in externally pressurized gas-lubricated circular thrust bearings (A) ... D 83

MORKOVIN, M. V.
Note on the assessment of flow disturbances at a blunt body traveling at supersonic speeds owing to flow disturbances in free stream (A) ... O 86

MORRIS, G. L.
Gas-turbine-exhaust recovery cycle (A) ... Je 92

MORRIS, M. L.
Improved air-induction systems through the use of interaction (A) ... My 87

MORRISON, G. A.
Cemented-oxide cutting tools; where they stand today (A) ... D 88

MORRISON, J. L. M.
Strength of thick cylinders subjected to repeated internal pressure (A) ... Ap 102

MORROW, CHARLES EDWARD
Obituary ... D 131

MORROW, JODEAN
Cycle-dependent stress relaxation of A-286 alloy (A) ... Ja 73
Micro-plastic strain hysteresis energy as a criterion for fatigue fracture (A) ... Jl 71

MORROW, ROBERT LEE
Obituary ... O 142

MORSE, CHARLES HOSMER, JR.
Obituary ... Mr 139

MOSER, RICHARD F.
Economic development of prime movers using natural gas fuels (A) ... D 92

MOSHER, H. A.
Biography ... Jl 112
Elected Fellow of ASME ... Jl 112

MOSZYNSKI, J. R.
Viscosity of steam and water at moderate pressures and temperatures (A) ... O 87

MOTOR VEHICLES. *See also* GAS TURBINES
Automotive engine mount design (A) ... D 87
Electric-auto test (A) ... N 87
Gas-turbine fire trucks (A) ... Jl 56
Gas-turbine jeep (A) ... O 73

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

MOTOR VEHICLES (*continued*)
Henney Kilowatt—a new electric automobile (A) ... Je 81
Hydraulic transmission for tractors (A) ... Je 76
Transaxle lubricant for automobiles (A) ... Mr 91
Wall-climbing truck (A) ... Je 75
MOVING SIDEWALK. *See* TRANSPORTATION
MUELLER, WILLIAM H.
Dynamic loads during nose tow catapulting (A) ... S 96
MUENGER, J. R.
Grease lubrication studies with plain journal bearings (A) ... D 83
MULLEN, JOSEPH F.
Influence of volatile matter on the combustion of pulverized coal (A) ... D 82
MULLERGREN, ARTHUR LEONARD
Obituary ... F 144
MUMPER, HENRY DONALD
Obituary ... F 144
MURAKAMI, M.
Vibration of water-turbine draft tubes (A) ... Ja 68
MURPHEY, B. F.
Deformation process in metal-cutting (A) ... Mr 96
MURPHY, A. H.
The mechanical engineer in the missile-satellite field ... My 129
MURPHY, J. J.
Pressure-vessel overtemperature hazards (A) ... Ap 102
MURPHY, J. S.
Experimental study of cavitation in a mixed flow pump impeller (A) ... Je 96

N

NADAI, A. L.
To receive Elliott Cresson Medal ... S 105
NADLER, R. M.
Plasma flame-spraying equipment development (A) ... Mr 101
NAGHDI, P. M.
On Saint Venant's principle: elastic shells and plates (A) ... O 89
NAGLE, PERRY IRA
Obituary ... D 132
NAHAVANDI, AMIR
Effect of vibration on the load-carrying capacity of parallel surface thrust bearings (A) ... Je 99
NARA, H. R.
Studies of the design of steel castings and steel weldments as related to methods of their manufacture (A) ... Ag 85
NATIONAL POWER CONFERENCE, 1960 ... Ag 116
NATURAL GAS
Economic development of prime movers using natural gas fuels (A) ... D 92
Gas from the Sahara? (A) ... Ag 77
Recent developments in field gas-handling facilities (A) ... D 91
NATURAL-GAS PIPELINES. *See also* GAS TURBINES
Gas-carrying aluminum pipeline (A) ... Je 85
One shaft versus two: gas-turbines in gas-line pumping ... O 46
NAUMOV, B.
Approximate method for calculating the time response in linear, time-varying, and nonlinear automatic control systems (A) ... N 108
NAYLOR, H. A., JR.
Some operating experiences at a sewage sludge drying plant (A) ... Mr 105
NECE, R. E.
Roughness effects on frictional resistance of enclosed rotating disks (A) ... F 109
NEDERMAN, MALTE R.
Obituary ... F 144
NELSON, EDWIN CARL
Obituary ... My 138
NELSON, WHARTON
Corrosion of superheaters and reheaters of pulverized-coal-fired boilers (A) ... Ap 107
NELSON, WINSTON L.
Pulse-width relay control in sampling systems (A) ... N 107
NEVILL, G. E.
How economics influenced the design of a 15,000-psi blowout preventer (A) ... D 89
NEWBERGER, E. S.
The FAA looks at flight controls (A) ... Ag 81
NEWCOMB, EDWARD COVERLY
Obituary ... Ja 138
NEWCOMER, G. H.
Study of vibration frequencies under impact conditions (A) ... Mr 103
NEWELL, HARRY BRUNT
Obituary ... Je 132
NEWMAN, LOWELL MARVIN
Obituary ... My 138
NICARAGUA
Unified national power systems (A) ... My 70
NICHOLS, D. E.
Over-all braking for jet transports (A) ... Ag 81
NICHOLS, J. B.
Graphitization failures in piping (AC) ... F 119
NITROGEN. *See* PSYCHROMETRIC DATA
NOISE ABATEMENT
Noise-abatement methods in meter and regulator stations (A) ... D 92
NONDESTRUCTIVE TESTING
Mobile reflectoscope inspection of railway car axles under rolling equipment on the Chesapeake and Ohio Railway Company (A) ... Mr 103
Ultrasonic testing (A) ... D 89
NONLINEAR SYSTEMS. *See* SHOCK
NORDT, PAUL W., JR.
The engineer in international affairs (D) ... S 101
NORRIS, R. H.
Local and average heat-transfer and pressure-drop for refrigerants evaporating in horizontal tubes (A) ... My 91
NORTON, E. C.
Overhaul shop planning for the P&WA turbojets (A) ... Ja 67
NOVOTNY, JEROME J.
Thermal conductivity and Prandtl number of carbon dioxide and carbon-dioxide air mixtures at one atmosphere (A) ... O 88
NOWAK, E. S.
Smoothed pressure—volume—temperature data for water in the critical region derived from experimental measments (A) ... N 98
Survey of P-V-T data for water in the critical region (A) ... N 98
NOYES, E. G.
Automation-turbine generators ... N 72
NOZZLES. *See also* PSYCHROMETRIC DATA, STEAM SAMPLING
Nozzle design cuts locomotive costs (A) ... Ag 87
Throat tap nozzles used for accurate flow measurements (A) ... My 96
NUCLEAR BRIEFS (A) ... Ja 60, F 99, Mr 90, My 80, Je 84, Jl 62, Ag 72, S 82, O 80, N 92
NUCLEAR CONGRESS, 1960 ... F 124, My 104
NUMERICAL CONTROL. *See* AUTOMATION

O

OAKLEY, W. W.
Biography ... F 138
Elected Fellow of ASME ... F 138
O'DONNELL, W. J.
Additional deflection of a cantilever due to the elasticity of the support (A) ... O 94
OFFICE BUILDINGS
Modular offices (A) ... My 74
OFFSHORE DRILLING
Floating vessel drilling and multicompletion method (A) ... S 91
General aspects of offshore lease automation (A) ... D 93
Pipe stresses when drilling from a floating vessel (A) ... D 93
Underwater oil drilling (A) ... Je 89
OIL FUEL. *See also* BOILER CORROSION
Control of air pollution from oil-burning power plants ... Ap 63, (D) Ag 92
OIL WHIP. *See* BEARINGS
OLIVETTI, ADRIANO
Obituary ... Je 132
OLSEN, NORMAN TRYGVE
Obituary ... Ja 138
OLSON, P. E.
Lateral forces between wheels and rails—an experimental investigation (A) ... Jl 78
ONAT, E. T.
Plastic-wave propagation effects in transverse impact of membranes (A) ... F 114
OPPENHEIM, A. K.
Geometric factors for radiative heat transfer through absorbing medium in Cartesian co-ordinates (A) ... My 93
OPTICS
Light of nearly a single frequency (A) ... S 75
ORIFICES. *See* FLUID METERS
ORNO, KNUD E.
Obituary ... F 144
ORRELL, JOHN ERNEST
Obituary ... S 124
OSCILLATION. *See* GYROSCOPES
OSTERLE, FLETCHER
Effect of vibration on the load-carrying capacity of parallel surface thrust bearings (A) ... Je 99
OSTERTAG, C. J., JR.
Experimental verification of a design basis for positional servomechanisms (A) ... Ja 66
OTTO, CHARLES RAYMOND
Obituary ... Ag 140
OVESEN, HENRIK
Biography ... F 139
Elected Fellow of ASME ... F 139
OWCZARSKI, W. A.
Arc welding of a Ni-Cr-Fe (Inconel) alloy for nuclear power plants (A) ... Jl 72

P

PACE, E. L.
Integration of turbine-driven boiler feed pumps in large power plants (A) ... Ap 105
PADDOCK, CHARLES B.
Obituary ... D 132
PAGE, D. E.
Human factors evaluation of a keyset entry technique for frequency and channel selection (A) ... Ag 84
PALMER, D. M.
Biography ... Ja 131
Elected Fellow of ASME ... Ja 131
PALMQUIST, EVERETT WILLIAM
Obituary ... D 132
PAO, YIH-HSING
Dispersion of flexural waves in an elastic circular cylinder (A) ... Mr 106
PARKER, MARVIN T.
Mechanical aspects of rig moves (A) ... D 87
PARRY, J. S. C.
Strength of thick cylinders subjected to repeated internal pressure (A) ... Ap 102
PARTRIDGE, E. P.
"Industrial water: use, reuse, misuse? ... Ja 31
PARINI, A. C.
Control of air pollution from oil-burning power plants (D) ... Ag 92
PASLAY, P. R.
Design of flapper valves (A) ... Ag 86
Vibration response of a linear undamped system resting on a nonlinear spring (A) ... O 88
PATENTS
Patents reconsidered ... Ap 143
PATINKA, P. J.
Rate your supervisor—a program for supervisory self-development (A) ... D 91
PATTERSON, R. C.
Water-treatment, corrosion, and internal deposit studies for Eddystone (A) ... Ap 105
PAUL, B.
Unified criterion for the degree of constraint of plane kinematic chains (A) ... F 113
PAULES, C. E.
Modernized engineering organization (A) ... Mr 98
PAULL, WILLIAM R.
Obituary ... N 140
PENROD, E. B.
Theoretical analysis of a Peltier refrigerator (A) ... My 95
PENZIEN, JOSEPH
Buckling of circular cones under axial compression (A) ... O 90
PERLBERG, EVERETT
Presses in the rubber and plastics industry (A) ... D 85
PERRONE, NICHOLAS
On strain-hardened circular cylindrical shells (A) ... O 91
Strain-hardening solutions to axisymmetric disks and tubes (A) ... Mr 106
PERRY, HARRY MARTIN
Obituary ... N 140
PESSEN, D. W.
Twinworm drive—a self-locking worm-gear transmission of high efficiency (A) ... Ja 71
PETERS, J. H.
Flow turning to increase strength, save weight (A) ... My 96

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

PETERSON, H. A.
Roll-force and torque coefficients for hot-strip steel mill (A) ..... Ja 73

PETERSON, W. H.
Cushioning requirements for adequate lading protection (A) ..... Mr 104

PETROLEUM INDUSTRY. *See also* NATURAL GAS
Correlation of a new design concept for high horsepower reciprocating pumps with test results (A) ..... D 93
Radioactive measurement of fluid density (A) ..... D 93
Sulfur recovery from petroleum gases (A) ..... D 90
Technical computer applications in exploration and production (A) ..... D 89

PETROLEUM PIPELINES. *See also* FLUID METERS
Automatic vapor-pressure controller for optimum volatile injection into crude lines (A) ..... D 91
Computer program to determine the throughput rate of a heated pipeline (A) ..... D 89
Computer simulation of marine terminal and pipeline operations of the Trans-Arabian Pipe Line Company (A) ..... D 89
Fuels for Argentina (A) ..... D 92
Plywood pipelines for high-sulfur oil (A) ..... Je 85
Rotterdam-Rhine oil pipeline (A) ..... Ag 76

PETROLEUM REFINING
Economic selection of steam and power supplies for refineries and petrochemical plants (A) ..... Ap 102
Integration of the power recovery gas turbine with fluid-bed processes (A) .. Ap 102
Operation "pig squeal"—for the recovery from natural gas of gasoline, propane, and butane (A) ..... Ag 70

PETROLEUM-WELL EQUIPMENT. *See also* OFFSHORE DRILLING
How economics influenced the design of a 15,000-psi blowout preventer (A) ..... D 89
Hydraulic wall-anchored drill collar (A) ..... D 93
Mechanical aspects of rig moves (A) ... D 87
New instruments improve depth accuracy (A) ..... D 87
Stuck drill-stem retriever (A) ..... My 75
"Unthawing" oil reserves (A) ..... S 78

PFEIFFER, D. C.
Biography ..... Ag 131
Elected Fellow of ASME ..... Ag 131

PFERSDORFF, O. H.
Considerations for gas turbines and their initial operating experiences at El Convento (A) ..... Je 91

PHILIPCHUK, VASIL
Fabrication by explosives ..... My 48

PHILLIPS, ALEXANDER JOHN
Obituary ..... Ag 140

PHILLIPS, HENRY
Closing our gaps in our knowledge of steam sampling (A) ..... F 110

PHILLIPS, N. D.
Oil-ash corrosion of superheater alloys in a pilot-scale furnace (A) ..... My 86

PHILSON, ROBERT BLACK
Obituary ..... Ap 152

PHOTODRAWINGS
Photography for plant maintenance (A) ..... D 91
Utilization of photography in plant engineering (A) ..... D 91

PHOTOELASTICITY
Photoelastic analysis of machining stresses (A) ..... Ja 70
Photoelastic model engineering ..... Jl 43

PHOTOGRAPHY
Ektalith document reproduction (A) .... Ja 55

PHYSICAL UNITS
AAAS Section M (Engineering) in operation SCUDS reviews national and international aspects of systems of units (A) ..... F 126
Toward resolution of the chaos and confusion in our systems of units (A) ..... Ag 82

PHYSIOLOGY
Accomplishments in human operator simulation (A) ..... Ag 79
Accomplishments in human simulation (A) ..... Ag 79
Clothed man (D) ..... F 121
Effect of temperature on tolerance to acceleration ..... Je 62
Effective stimulus for warmth sensation in man (A) ..... My 92
Exposure to aerodynamic heating transients ..... Je 60
Heat stress and the industrial worker .... Je 57
Heat stress in the desert ..... Je 59
Improving man's workload in space vehicle systems: methodology and measurement (A) ..... Ap 108
Man and his thermal environment ..... Je 57
Man's response to low-frequency vibration (A) ..... Ap 108
Planning human environment into industrial processing (A) ..... My 97
Possibilities for human simulation (A) .. S 95
Possibilities for simulation of human dynamics and perception (A) ..... Ag 78
Possibilities for simulation of dynamic physiology (A) ..... S 95
Precise measurement of clothes insulation during controlled operation of the human (A) ..... Ap 112
Prediction of heat-stressed skin boundary temperatures (A) ..... My 92
Prediction of human thermal tolerance when using a ventilating garment with an antiexposure suit (A) ..... My 95
Role of the skin in heat transfer (A) .... My 92
Sensory reception and control of temperature in man (A) ..... My 91
Simulation of human physiological systems (A) ..... S 95
Some physiological effects of low-frequency, high-amplitude vibration (A) . Jl 70
Thermal comfort in space vehicles (A) ..... My 93

PICKRELL, W. S.
Technical computer applications in exploration and production (A) ..... D 89

PINGER, GEORGE CHRISTIAN
Obituary ..... O 142

PINKEL, I. IRVING
Aircraft seating—forward facing...or rearward? ..... F 60

PINKUS, O.
Solution of Reynolds equation for arbitrarily loaded journal bearings (A) .. D 83

PINNEY, M. A.
Dynamic stresses in traction motors resulting from defective gearing (A) ... Mr 104

PINTER, BARTHOLOMEW EDWARD
Obituary ..... My 138

PIPE AND PIPING. *See also* INSTRUMENTS—TEMPERATURE, PLASTICS
Fabrication of a one-inch thick ten-inch diameter welded inconel pipe (A) .... Jl 72
Glass-reinforced plastic pipe (A) ..... Ap 91
Graphitization failures in piping (D) ... F 117
Interpretations of 1955 Code for Pressure Piping ..... F 136, Ap 144, Jl 115
Material selection and fabrication, main steam piping Eddystone No. 1, 1200-F and 5000-psi service (A) ..... Ap 105
Test to anticipate the performance of steam piping at 5000 psi and 1200 F (A) ..... F 105

PIPELINES. *See also* COMPRESSORS, FLUID METERS, PETROLEUM PIPELINES, WATER PIPELINES
Aluminum pipelines laid automatically .. F 98
Automation for liquid pipelines (A) ..... D 87
Field cutting possible with Glasteel pipe (A) ..... F 98
Pipelines automatically purged (A) ..... N 88
Pressure surges in pipelines carrying viscous liquids (A) ..... Je 95

PISTON RINGS
Piston-ring design and application practice for modern large-bore diesel and gas engines (A) ..... Jl 76

PITT, P. A.
1100-hp gas turbine for marine applications (A) ..... Je 94

PITTMAN, FRANK K.
Power reactors—the next ten years ..... N 76

PLANETS. *See* THERMODYNAMICS

PLANT LAYOUT
New developments in plant layout techniques (A) ..... My 97

PLANT PROTECTION
Plant protection by electronic devices (A) ..... F 89

PLASMA. *See also* METAL COATING, SPACE TRAVEL
Higher states of matter (A) ..... Mr 91

PLASTICITY. *See also* BURSTING TESTS
On the plastic behavior of rotating cylinders (A) ..... Ap 114

PLASTICS. *See also* ADHESIVES, LAMINATES, PIPE AND PIPING, TIRES
Bibliography ..... Mr 71
Design strength data and calculations on thermoplastics (A) ..... D 86
Factors affecting the long-term performance of polyethylene plastic pipe (A) .. F 105
Glass-reinforced plastic as an aviation gas-turbine compressor-housing material (A) ..... S 98
Obtaining stress-% compression diagrams of foamed plastics at high rates of compression (A) ..... D 86
Plastic films in construction and agriculture (A) ..... F 104
Plastics developments; review of the literature for the year 1958–1959 ..... Mr 65
Polyethylene pipe progress (A) ..... F 105
Presses in the rubber and plastics industry (A) ..... D 85
Principles of processing liquid urethane elastomers (A) ..... D 86
Spincasting accurate surfaces with synthetic resins (A) ..... Mr 86
Uniform two-way orientation of plastic films (A) ..... F 105
Videne—a polyester laminating and surfacing film (A) ..... F 104

PLATES. *See also* BUCKLING, DISKS, ELASTICITY, VIBRATION, WAVE MECHANICS
Deformation and moments in elastically restrained circular plates under arbitrary load or linear thermal gradient (A) ..... F 107
Effect of shear deformations on the bending of rectangular plates (A) ..... Ap 114
Elastic equilibrium of a plate with a reinforced elliptical hole (A) ..... F 113
On a class of nonlinear axisymmetric plate problems (A) ..... O 94

PLATING. *See* METAL COATING

PLESSET, M. S.
On cathodic protection in cavitation damage (A) ..... F 108

PLUTONIUM
Plutonium-alloy rolling mill (A) ..... Je 77

PNEUMATIC DEVICES
Pneumatic engine control (A) ..... Jl 55

POEHLMANN, WILLIAM JOHN
Obituary ..... Mr 139

POLIVKA, JAROSLAV JOSEPH
Obituary ..... My 138

POLK, L. F.
Biography ..... Ag 131
Elected Fellow of ASME ..... Ag 131

POLLITT, E. P.
Some applications of the cycloid in machine design (A) ..... F 10

POPPER, B.
Twinworm drive—a self-locking worm-gear transmission of high efficiency (A) ..... Ja 71

POSTLE, D. E.
Convertiplanes in commercial operation (A) ..... Ag 78

POTTER, J. H.
Free expansion of dry and moist air (A) ..... Ag 82
The low level economizer—a design study ..... Je 66, N 111

POTTER, JOHN F.
Obituary ..... Je 132

POULSEN, ALFRED EDWIN
Obituary ..... D 132

POWER. *See also* FUEL CELLS, HUMAN ENGINEERING, MAGNETOHYDRODYNAMICS, THERMOELECTRICITY
Industry's need for quality electric power service (A) ..... N 105
National Power Conference, 1960 ..... N 129
Russian electric production (A) ..... Ap 90

POWER PLANTS. *See also* MAGNETOHYDRODYNAMICS, SOLAR ENERGY, THERMOELECTRICITY
Cost comparison—diesel and steam (A) .. Jl 75
Peak-load power plants (A) ..... Ja 54
Power industry in 1980 (A) ..... N 82
Power-plant computer record (A) ..... Mr 82
What may be ahead in power production ..... My 61

POWER PLANTS—COMBINED-CYCLE
Combined-cycle power generation (A) .. Ap 89

POWER PLANTS—DIESEL
Power cost studies for systems with diesel generating stations (A) ..... Ag 86
System stability analysis including governor, engine, generator, and tie-line impedance (A) ..... Ag 87

POWER PLANTS—GAS-TURBINE. *See also* GAS TURBINES, POWER PLANTS—COMBINED-CYCLE
Considerations for gas turbines and their initial operating experiences at El Convento (A) ..... Je 91
Economics of the steam-gas turbine exhaust-fired cycle for medium-size utilities (A) ..... Je 93
Experience with gas turbines in French power stations (A) ..... Je 91
Gas-steam power generation (A) ..... Je 93
Gas-turbine electric plant in Venezuela .. S 58
Rapid starting automatic gas-turbine

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

POWER PLANTS—GAS-TURBINE (*continued*)
generating plant for peak-load duty (A) ... Je 91
Three years' operating experience with 7500 kw gas-turbine plants in Belgian steelworks (A) ... Je 91

POWER PLANTS—HYDROELECTRIC. *See also* GOVERNORS, HYDRAULIC TURBINES, PUMPS—CENTRIFUGAL
Canadian hydroelectric progress (A) ... Mr 79
Generator installation begins at Niagara (A) ... D 73
Pumped storage gets bigger (A) ... Jl 61
"Pumped-storage" power (A) ... F 89
Tidal-power turbines (A) ... F 96

POWER PLANTS—INDUSTRIAL. *See* GAS TURBINES

POWER PLANTS—NUCLEAR. *See also* HEAT-EXCHANGE EQUIPMENT, SHIPS, WELDING
Advanced gas-cooled reactor (A) ... Ag 77
Advanced pressurized-water-reactor electric generating station (A) ... Mr 99
Air testing of atomic piles (A) ... Mr 94
"Annihilation reaction" (A) ... D 74
Another step in water-reactor plant technology (A) ... Mr 100
Berkeley nuclear power station (A) ... My 84
Boiling-water-reactor study (A) ... Mr 99
Direct conversion in fuel assemblies (A) Ag 68
Dresden dedicated (A) ... D 64
Earthquake-proof reactor (A) ... F 94
Economic nuclear power? (Ed) ... Ap 57
Fuel-element development (A) ... O 77
Future of nuclear power (A) ... S 89
G.E.C. gas-cooled reactor (A) ... O 76
Heavy-water-moderated nuclear power plants (A) ... Mr 100
Indian Point reactor vessel shipped (A) ... Je 82
It's everybody's atom (Ed) ... D 37
KEWB reaches 2,300,000-tkw peak power (A) ... Ag 73
Main features of HTGR announced (A) ... N 93
Molten-salt reactor experiment at ORNL (A) ... D 75
New reactor for O.E.E.C. research (A) ... F 103
Nuclear briefs (A) ... Ja 60, F 99, Mr 90, My 80, Je 84, Jl 62, Ag 72, S 82, O 80, N 92
Nuclear Engineering Abstracts ... D 108
Nuclear milestone (Ed) ... Je 45
Nuclear progress and outlook (A) ... F 99
Nuclear reactor simulator (A) ... Ap 101
Nuclear-superheated BONUS reactor (A) ... D 74
Operating experience and advanced designs of sodium-graphite reactors (A) ... Mr 99
Pathfinder nuclear plant ... Ap 67
Peaceful uses of atomic energy theme of 1960 Nuclear Congress ... My 104
Power reactors—the next ten years ... N 76
Pressure suppression containment for nuclear power plants (A) ... My 86
"Uniform procedure for use in evaluation of nuclear power reactors" published by Atomic Industrial Forum ... Ap 141
Yankee reactor vessel shipped (A) ... A 97

POWER PLANTS—SODIUM-VAPOR
Experimental sodium-vapor power plant (A) ... N 109

POWER PLANTS—STEAM. *See also* BOILER CORROSION, DUST COLLECTORS, FEEDWATER TREATMENT, OIL FUEL, PIPE AND PIPING, POWER PLANTS—COMBINED-CYCLE, POWER PLANTS—GAS-TURBINE, PUMPS, STEAM TURBINES, STUFFING BOXES
ASME Power Exposition to preview advances in power-plant control ... O 125
Bergen generating station (A) ... N 80
Eddystone research story (A) ... Ap 104
510,000-kw turbine generator (A) ... My 71
Geothermal power in California (A) ... Je 74, (correction) Ag 67
Internal-combustion engines in steam power stations (A) ... Jl 75
Large power units cheaper (A) ... D 73
Little Gypsy Station (A) ... N 82
Low level economizer ... Je 64, (D) N 110
Power plant automation ... N 68
Recent boiler design practice (A) ... Ap 103
System expansion—fuel costs versus capital charges ... N 64, (correction) D 96
Thermal efficiency—40 per cent or better ... N 58

POWER SYSTEMS
D-C transmission for U.S.? (A) ... D 66
Decentralized peak-shaving (A) ... My 86
EHV research in Ontario (A) ... Mr 80
760-kv test line (A) ... Je 80

POWER SYSTEMS (*continued*)
Unified national power system (A) ... My 70

PRACHT, P.
Combustion of European coals in modern German steam generators (A) ... Ap 190

PRAGER, WILLIAM
Receives Theodore von Karman Award. D 103

PRENTICE, BRUCE ROBINSON
Obituary ... Ag 140

PRESSES. *See* PLASTICS, RUBBER

PRESSURE VESSELS
Influence coefficients and pressure vessel analysis (A) ... Ap 102
Junction problem of solid-slotted cylindrical shells (A) ... S 98
"Operation Cryogenics" (A) ... D 68
Prediction of creep failure time for pressure vessels (A) ... O 88
Pressure-vessel overtemperature hazards (A) ... Ap 102
Stresses in thin-walled pressure vessels with ellipsoidal heads (A) ... S 92
SwRI reports on pressure vessel research ... My 107
Theory of the ideal design of a compound vessel (A) ... Ap 103

PRICE, GWILYM A.
Biography ... Ja 105
Receives John Fritz Award ... Ja 105

PRODUCT DESIGN
Automatic assembly ... My 40

PRODUCTION CONTROL
Feedback ... consumer to factory ... Ja 41, (D) Je 103
Method for determining the optimum starting quantity when manufacturing to fixed order size (A) ... S 92

PRODUCTIVITY. *See* INDUSTRIAL PRODUCTIVITY

PROPELLOPLANE. *See* AIRPLANES

PROPERTIES OF MATERIALS
Elements of materials science (BR) ... My 99
Nature and properties of engineering materials (BR) ... My 99
Symposium on education in materials (BR) ... My 99

PROSTHETIC DEVICES
Some considerations in the design of hand substitutes (A) ... F 112
Some human factors considerations in the development of upper extremity prostheses (A) ... F 112

PROWELL, ROY W.
Rocket motor-gear tooth analysis Hertzian contact stresses and times (A) ... Mr 100

PRYLE, W. H.
Brittle fracture characteristics of a reactor pressure vessel steel (A) ... Jl 73

PSYCHOLOGY
Possibilities for simulation of human dynamics and perception (A) ... Ag 78

PSYCHROMETRIC DATA
Experimental determination of limit of supersaturation of nitrogen vapor expanding in a nozzle (A) ... Ag 84

PUGH, GEORGE ARTHUR
Obituary ... Je 132

PULVERIZED COAL
Influence of volatile matter on the combustion of pulverized coal (A) ... D 82

PUMPED STORAGE. *See* POWER PLANTS—HYDROELECTRIC

PUMPING PLANTS
Microwave-controlled diesels for pumping stations (A) ... Mr 83

PUMPS. *See also* CAVITATION, STUFFING BOXES
Calculating effective thrust loads in axial-piston pumps (A) ... Mr 98
Charts for determining size of surge suppressors for pump-discharge lines (A) ... Mr 98
Correlation of a new design concept for high horsepower reciprocating pumps with test results (A) ... D 93
Distribution of service lives of hydraulic pumps (A) ... Ap 107
Integration of turbine-driven boiler feed pumps in large power plants (A) ... Ap 105
Peristaltic pumps (A) ... O 75
Water-turbine ballast pump (A) ... N 96

PUMPS—CENTRIFUGAL
All-plastic pumps (A) ... F 97
Cavitation in centrifugal pumps with liquids other than water (A) ... Mr 98
Centrifugal pumps used as hydraulic turbines (A) ... Mr 98
Correlation of cavitation inception data for centrifugal pump operating in water and in sodium-potassium alloy (NaK) (A) ... F 108
Modern developments of centrifugal pumps (A) ... D 92
Pump standardization ... a user's concept ... F 57

PUMPS—CENTRIFUGAL (*continued*)
Reversible pump-turbines at Niagara Falls ... Mr 74, (D) O 98

PUMPS—JET
Jet pump design theory (A) ... Je 95
Theoretical and experimental investigation of a high performance jet pump utilizing boundary-layer control (A) ... S 97

PUMPS—ROTARY
Application of internal-gear rotary pumps to viscous liquid service (A) ... Je 95

PUNCHING
Microanalysis of steel-rule cutting (A) ... Mr 97

PURDY, HENRY TERRY
Obituary ... Ja 138

PUSATERI, STEPHEN FRANK
Obituary ... Ap 152

Q

QUIRK, CLINTON HENRY
Obituary ... Ap 152

R

RADAR
Criteria for design of foundations for precision tracking radars considering dynamic response (A) ... My 88
Design of the FPS-35 antenna (A) ... My 87
Hydraulic servo transmissions for target tracking radar drives (A) ... My 86
Mechanical design of 150-ft-diam metal space frame radome (A) ... My 88
Rotative power for large antennas (A) ... My 87

RADIATION
Elastomer withstands gamma radiation (A) ... Je 85

RADIATION DETECTORS
Solid-state ionization chamber (A) ... Mr 82

RADIATORS. *See* SPACE VEHICLES

RADIOACTIVE DENSITOMETERS
Radioactive measurement of fluid density (A) ... D 93

RADIOACTIVITY. *See also* WASTE DISPOSAL
Glass for radiation-measuring equipment (A) ... N 92

RADOK, J. R. M.
Contact problem for viscoelastic bodies (A) ... Je 90

RAGSDALE, R. G.
Some temperature and pressure measurements in confined vortex fields (A) ... S 90

RAILROAD BRAKES
Automated testing of railway freight brake control valves (A) ... Jl 77

RAILROAD CARS. *See also* WHEELS
Cushioning requirements for adequate lading protection (A) ... Mr 104
Hydracushion underframe and its contribution to the reduction of lading damages (A) ... Ap 111
Impact as related to freight-car and lading damage (A) ... Ap 110
Increased cushioning capacity—a requirement of tomorrow's freight car (A) ... Ap 110
Mobile reflectoscope inspection of railway car axles under rolling equipment on the Chesapeake and Ohio Railway Company (A) ... Mr 103
Progress in railway mechanical engineering 1958–1959 ... F 66
Rubber-tired subways (A) ... Ap 90
Santa Fe shock control freight car (A) ... Ap 110
Stainless-steel subway cars (A) ... S 81
Study of vibration frequencies under impact conditions (A) ... Mr 103

RAILROAD MECHANICAL ENGINEERING
Progress in railway mechanical engineering 1958–1959 ... F 66, (D) Jl 80

RAILROAD RAILS. *See* ADHESION (RAIL), LOCOMOTIVES

RAILROAD TRAINS
Diesel Pullman trains (A) ... S 88

RAILROADS
Monorail potential? (A) ... Ag 79

RAMJETS. *See* AIRPLANE ENGINES

RAMSAY, WILLIAM ARTHUR
Obituary ... N 140

RANDOLPH, S. WELLFORD
Obituary ... N 140

RAPHAEL, JOEL A.
Obituary ... Ap 152

RAPIER, PASCAL M.
Relativity and the mechanical engineer (D) ... Ag 91

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

RAPSON, WILLIAM J., JR.
General aspects of offshore lease automation (A) ..... D 93

RARIG, S. F.
Maintenance-control center (D) ..... F 120

RASMUSSEN, FRANK
Obituary ..... Ag 140

RASPET, AUGUST
The ducted propeller ..... D 45

RATHBUN, A. S.
Natural-circulation tests with water at 800 to 2000 psia under nonboiling, local boiling, and bulk boiling conditions (A) ..... N 102

RAY, DAVID HEYDORN
Obituary ..... S 124

RAYLE, R. E.
Influence of orifice geometry on static pressure measurements (A) ..... My 90

REACTORS. *See* POWER PLANTS—NUCLEAR

READ, CARLETON ALLEN
Obituary ..... Je 132

RECORDS, WILLIAM ALLEN
Obituary ..... N 140

REDOTTEE, G.
Combustion of European coals in modern German steam generators (A). Ap 109

REED, W. H.
Power cost studies for systems with diesel generating stations (A) ..... Ag 86

REFLECTOSCOPES. *See* NONDESTRUCTIVE TESTING

REFRIGERANTS AND REFRIGERATION. *See also* EXCAVATION
Effect of transient loads on the refrigerated-space temperature of a cooling complex (A) ..... Mr 105
Expansion-engine refrigerator (A) ..... My 78
Local and average heat-transfer and pressure-drop for refrigerants evaporating in horizontal tubes (A) ..... My 91

REGILLO, D. A.
Rotative power for large antennas (A) ... My 87

REICHENBACH, GEORGE
Grinding (a review of the literature for 1959) ..... S 73

REICHLE, L. F. C.
Boiling-water-reactor study (A) ..... Mr 99

REID, J. C., JR.
Performance of elastic, centrally pivoted, sector, thrust-bearing pads—Part 1 (A) ..... D 84

REISINGER, R. H.
Thermal stress protection in starting and loading boiler-turbine-generator combinations (A) ..... N 105

RELATIVITY
Relativity and the mechanical engineer. ..... Ap 78, (D) Ag 90

RELIABILITY. *See also* AIRPLANE ENGINES, AIRPLANES
Reliability control ..... Je 54

RELIEF VALVES. *See* VALVES

REMOTE CONTROL
Microwave-controlled diesels for pumping stations (A) ..... Mr 83
Task performance with the CRL model 8 masterslave manipulator as a function of color-coding, distance, and practice (A) ..... Ag 85

RENCK, RICHARD
Some attitude and personality characteristics of engineers in industry (A) .. Ap 112

RENNIE, ROBERT
Obituary ..... Ja 138

REPATH, CHARLES HENRY
Obituary ..... S 124

REPKO, A. J.
Burst strengths and deformations of welded composite turbine wheels as related to weld quality and plasticity calculations (A) ..... Ja 74

RESEARCH
Administration of research and development projects (A) ..... Mr 97
Condition conducive to originality needed to speed research goals, say authorities ..... Mr 117
Eastern Research Center (A) ..... D 71
Effectiveness of R & D (A) ..... Mr 88
How the research and development dollars are spent ..... O 110
How to control research and engineering Je 46
News and notes ..... My 113

RESINS. *See* PLASTICS

REYNOLDS, W. C.
Summary of experiments on turbulent heat transfer from a nonisothermal flat plate (A) ..... My 95

RICHARDS, LESTER J.
Obituary ..... F 144

RIEGEL, M. S.
Stresses in wrought-steel wheel rims and their relation to wheel life (A) ..... Mr 104

RIGASSION, J. L.
Utilizing industrial engineering in engineering (A) ..... Mr 97

RIGS. *See* PETROLEUM-WELL EQUIPMENT

RIMROTT, F. P. J.
On the plastic behavior of rotating cylinders (A) ..... Ap 114
Prediction of creep failure time for pressure vessels (A) ..... O 88

RINGLEB, F. O.
Two-dimensional flow with standing vortexes in ducts and diffusers (A) ..... Je 98

RITCHIE, M. L.
Manual attitude control in space—arrangement of controls (A) ..... Ag 85

ROBBINS, C. H.
Pressure suppression containment for nuclear power plants (A) ..... My 86

ROBBINS, F. A.
Piston-ring design and application practice for modern large-bore diesel and gas engines (A) ..... Jl 76

ROBERTS, A. P.
Hydraulic wall-anchored drill collar (A). D 93

ROBERTSON, C.
Biography ..... Ag 124
Nominated for Vice-President ..... Ag 124

ROBERTSON, D.
New sensitive temperature detector for use in high pressure fluid piping (A) .. Ap 104

ROBINSON, MYLES E.
Decade of electric utility fuel experience (A) ..... D 82

ROCHE, J. F.
Development of a maintenance program for jet transport aircraft (A) ..... Ja 67

ROCKETS. *See also* GEARS, POWER PLANTS—SODIUM-VAPOR
Mission and state-of-the-art effects on rocket feed system comparisons (A) ... Ag 80
Performance of the ducted rocket (A) ... S 95
Simulation testing of rocket engine control components (A) ..... Ag 80

ROCKWOOD, GEORGE ICHABOD
Obituary ..... Mr 139

ROD MILLS. *See* IRON AND STEEL PLANTS

RODENBURG, CARL E.
Concept of combustion control for firing two solid fuels (A) ..... D 82

RODGERS, NED
Inspecting taper threads—a new technique ..... Ag 43

ROGERS, JOSEPH ELSWORTH
Obituary ..... N 140

ROHRIG, I. A.
Graphitization failures in piping (D) .... F 117

ROLLING, R. E.
Adiabatic bulk modulus of normal paraffin hydrocarbons from hexane to hexadecane (A) ..... My 90

ROMERIL, J. G.
BOAC's maintenance experience of the Rolls Royce Avon Mark 524 in its Comet-4 jets (A) ..... S 96
Maintenance of the Bristol Proteus in BOAC's Britannia aircraft (A) ..... S 97

ROSEMARY, J. K.
Mission and state-of-the-art effects on rocket feed system comparisons (A) ... Ag 80

ROSENBERG, R. H.
Developing reliability in the T58 engine control (A) ..... My 89

ROSENBERG, R. M.
Normal modes of nonlinear dual-mode systems (A) ..... Mr 106

ROSHONG, R. L.
Nickel-chromium-iron alloy (Inconel) forgings for nuclear-reactor systems—a summary of forging techniques and mechanical properties (A) ..... Jl 72

ROSS, A. B.
Cycle dependent stress relaxation of A-286 alloy (A) ..... Ja 73

ROSS, STEWART H.
Engineers' unions—an uncertain future. O 134

ROSSHEIM, D. B.
Pressure-vessel overtemperature hazards (A) ..... Ap 102

ROSSI, B. E.
Receives Samuel Wylie Miller National Award ..... Je 123

ROSSITER, H. G.
B. E. A.'s experience with propeller turbine engines (A) ..... S 97

ROTEM, Z.
Heat transfer to water in turbulent flow in internally heated annuli

ROTEM, Z. *(continued)*
Part 1—Stationary flow (A) ..... N 100
Part 2—Pulsating flow (A) ..... N 100

ROTH, ESTEBAN GERTMAN
Obituary ..... D 132

ROTHE, F. S.
System stability analysis including governor, engine, generator, and tie-line impedance (A) ..... Ag 87

ROTORS. *See also* INSTRUMENTS—VIBRATION
Roughness effects on frictional resistance of enclosed rotating disks (A) .... F 109
Stability of a turbine-generator rotor including the effects of certain types of steam and bearing excitations (A) .... O 88

ROUBIK, J. R.
Milling torquemeter of planetary-gear design (A) ..... Jl 70

ROULEAU, W. T.
Pressure surges in pipelines carrying viscous liquids (A) ..... Je 95

ROWE, G. W.
Lubrication at high temperatures with vapor-deposited surface coatings (A). D 83

ROWLAND, W. H.
Recent boiler design practice (A) ..... Ap 103

RUBBER
Bibliography ..... Ap 76
International Rubber Conference covers full range of rubber technology ..... Ja 122
Presses in the rubber and plastics industry (A) ..... D 85
Rubber developments; review of the literature for the years 1957–1959 ..... Ap 71
Rubber-lined pickling tanks (A) ..... S 85

RUBIO, ABDON
Steam-turbine buckets automatically milled ..... Ja 44

RUDO, STEPHEN L.
Obituary ..... Je 132

RUHL, C. A. L.
Relief valves for mobile applications (A). Mr 99

RUPTURE. *See* METAL CREEP

RUSSIA. *See also* AUTOMATIC CONTROL, MACHINE TOOLS
Russian electric production (A) ..... Ap 90

RUST. *See* CORROSION

RUTZLER, JOHN E., JR.
Fillers and stresses in an epoxy resin (A). D 86

RUZICKA, J. A.
Analysis and design of tangent elasticity vibration isolators (A) ..... S 91

RYAN, WILLIAM FREDERICK
Obituary ..... D 132

S

SACHS, BRICE A.
Computer simulation of marine terminal and pipeline operations of the Trans-Arabian Pipe Line Company (A) ..... D 89

SADOWY, MIROSLAV
Rigidity and stability of machine tools (A) ..... Ag 89

SAELMAN, B.
Motion and loading of a hinged ramp which supports a sliding mass (A) ..... F 114

SAFETY ENGINEERING. *See also* AIRPLANES, MACHINE DESIGN
Aircraft seating—forward facing ... or rearward? ..... F 60
Air-safety research appraised by Cornell-Guggenheim Aviation Safety Center ..... Jl 85
The DC-8 seat-passenger protection with structural economy (A) ..... Ag 81
The FAA looks at flight controls (A) .... Ag 81
Safety in materials handling—an engineering approach ..... Jl 30

SAFETY VALVES
New development in surface and subsurface storm chokes (A) ..... D 90

SAGE, B. H.
Thermal transfer in turbulent gas streams. Effect of turbulence on local transport from spheres (A) ..... O 93

SAGE, W. L.
Relationship of coal-ash viscosity to chemical composition (A) ..... F 106

SAINT VENANT'S PRINCIPLE. *See* DYNAMICS, ELASTICITY

SALDIN, H. B.
Space electric power application study (A) ..... S 93

SALEMANN, VICTOR
Biography ..... Ja 108
Receives Junior Award ..... Ja 108

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

SALERNO, V. L.
Effect of shear deformations on the bending of rectangular plates (A) ..... Ap 114

SALES ENGINEERING
A career in sales engineering ..... Je 124

SALISBURY, J. KENNETH
Biography ..... Ja 108
Receives Prime Movers Committee Award ..... Ja 108

SALT WATER
Fresh water from salt water ..... O 57

SALTZMAN, S.
Method for determining the optimum starting quantity when manufacturing to fixed order size (A) ..... S 92

SAMS, J. H.
Biography ..... Jl 112
Elected Fellow of ASME ..... Jl 112

SANDWICH CONSTRUCTION. *See* STRUCTURES

SAVINO, J. M.
Some temperature and pressure measurements in confined vortex fields (A) .... S 90

SCALE REMOVAL
Blast descaling (A) ..... Ja 58

SCHAFER, ROBERT ADAM
Obituary ..... F 144

SCHAIRER, GEORGE S.
Biography ..... Ja 106
Receives Spirit of St. Louis Medal ..... Ja 106

SCHARNAGEL, HERMAN J.
Obituary ..... Ja 138

SCHARP, C. B.
Thermal stress protection in starting and loading boiler-turbine-generator combinations (A) ..... N 105

SCHERNER, JOHN
Obituary ..... Je 132

SCHICK, D. F., JR.
Electrostatic precipitators (D) ..... S 100

SCHICKEL, NORBERT H.
Obituary ..... N 140

SCHIEFER, R. B.
Smoke reduction in residual-fuel-burning gas-turbine combustion system (A) ..... Je 93

SCHLEIF, F. R.
Experiences with hydraulic prime-mover controls (A) ..... Je 96

SCHMIDT, F. W.
Measured variations in local surface temperatures in pool boiling of water (A) ..... N 103

SCHMIDT, J. E.
Transient temperatures and thermal stresses in hollow cylinders due to heat generation (A) ..... My 95

SCHMITZ, M. A.
Man's response to low-frequency vibration (A) ..... Ap 108
Some physiological effects of low-frequency, high-amplitude vibration (A). Jl 70

SCHNEIDER, FRED
Amortization and determination of savings of material-handling features (A) ..... Mr 106

SCHOEPPNER, O. C.
Description of a 9000-hp single-shaft gas turbine (A) ..... Je 95

SCHUH, N. F.
Space electric power application study (A) ..... S 93

SCHUMANN, ALEX P.
Obituary ..... Mr 139

SCHWARTZ, F. L.
Biography ..... Ag 129
Elected Fellow of ASME ..... Ag 129

SCHWARZ, MICHAEL
Obituary ..... O 142

SCOTT, P. R.
Automatic vapor-pressure controller for optimum volatile injection into crude lines (A) ..... D 91

SCREW THREADS
Inspecting taper threads—a new technique ..... Ag 43

SCRUBBERS. *See* GAS CLEANERS

SEA WATER
Flash evaporators ..... Ap 84
Thin-film distillation for extracting fresh water (A) ..... Mr 86
Utility converts sea water (A) ..... Ap 92

SEALS
Fluid mechanics approach to the labyrinth seal leakage problem (A) ..... Je 94
Wiping seal design (A) ..... Mr 88

SEBAN, R. A.
Heat transfer and effectiveness for a turbulent boundary layer with tangential fluid injection (A) ..... My 95

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

SEDGWICK, ROBERT K.
Tools and machines—simultaneous development ..... N 49, (A) Ag 88

SEDOR, P.
External corrosion of superheaters in boilers firing high-alkali coals (A) ..... Ap 108

SEGLEM, C. E.
Turbine-exhaust losses (A) ..... N 106
Turbine-testing facility ..... Jl 47

SEIDE, PAUL
Effect of pressure on the bending characteristics of an actuator system (A) .. A 90

SEIREG, A.
Bending strength of gear teeth by cantilever-plate theory (A) ..... Mr 100

SELBY, K. L.
Biography ..... Ag 103
Elected Fellow of ASME ..... Ag 103

SENNER, A. H.
Biography ..... F 138
Elected Fellow of ASME ..... F 138

SENOO, YASUTOSHI
Rotating wakes in vaneless diffusers (A) F 109

SENSENBAUGH, J. D.
Effect of operating variables on the stack emission from a modern power station boiler (A) ..... F 111

SERVOMECHANISMS. *See also* RADAR
Experimental verification of a design basis for positional servomechanisms (A) ..... Ja 66

SETHNA, P. R.
Steady-state undamped vibrations of a class of nonlinear discrete systems (A) F 115

SEUTTER, LOUIS
Obituary ..... Mr 139

SEVIN, EUGENE
On the elastic bending of columns due to dynamic axial forces including effect of axial inertia (A) ..... F 114

SEWAGE DISPOSAL
Some operating experiences at a sewage sludge drying plant (A) ..... Mr 105

SHAFFER, B. W.
Mechanics of the sheet-bending process (A) ..... Ap 113
Refinement of finite difference calculations in kinematic analysis (A) ..... F 107

SHAFFERS, W. J.
Vibration of shaft ropes with time variable length, treated by means of Riemann's method (A) ..... Ag 86

SHAI, I.
Heat transfer to water in turbulent flow in internally heated annuli
Part 1—Stationary flow (A) ..... N 100
Part 2—Pulsating flow (A) ..... N 100

SHANK, M. E.
Analysis of solar-furnace performance in mechanical testing at extremely high temperatures (A) ..... Je 91

SHARBAUGH, J. E.
Variable flow resistance with adjustable multihole orifice plates in series (A) ... My 90

SHAW, M. C.
Free machining steel
Part I—Tool-life characteristics of resulfurized steel (A) ..... Jl 68
Part II—Tool-life characteristics of leaded steel (A) ..... Jl 68

SHAW, R.
Dominance of shear stresses in early stages of impulsive motion of beams (A) ..... F 114

SHEET METALS. *See* METAL FORMING, STRUCTURES

SHELLS. *See also* ELASTICITY, PRESSURE VESSELS
Analysis of axially loaded annular shells with application to welded bellows (A) ..... My 96
Elastic-plastic response of thin spherical shells to internal blast loading (A) .... F 114
On strain-hardened circular cylindrical shells (A) ..... O 91
On the optimum design of shells (A) ..... Je 90
Plastic analysis of circular conical shells (A) ..... O 93
Yield conditions for rotationally symmetric shells under axisymmetric loading (A) ..... Je 90

SHERMAN, J.
Variable flow resistance with adjustable multihole orifice plates in series (A) ... My 90

SHERMAN, P. E.
Application of a portable spectroscope to the rapid identification of alloy steels (A) ..... Ja 67

SHERWOOD, T. K.
Sublimation mass transfer through compressible boundary layers on a flat plate (A) ..... F 109

SHIELD, R. T.
On the optimum design of shells (A) ..... Je 90

SHIP STABILIZATION
Preliminary design of a roll-stabilization system for a ship (A) ..... N 106

SHIPBUILDING
Ships with rubber "tires"? (A) ..... Mr 84

SHIP-MODEL BASINS. *See* TOWING TANKS

SHIPPING CONTAINERS
Collapsible containers ..... D 54
Epoxy-glass cargo carrier (A) ..... Ap 96

SHIPS. *See also* GAS TURBINES, TOWING TANKS
"Canberra" cargo transporter (A) ..... Mr 95
Gas turbine propulsion for hydrofoil boats ..... Je 48
Nuclear carrier "Enterprise" (A) ..... Ja 54
Self-loading and unloading ship (A) ..... N 86

SHOCK. *See also* RAILROAD CARS
Note on the assessment of flow disturbances at a blunt body traveling at supersonic speeds owing to flow disturbances in free stream (A) ..... O 89

Propagation of an impulse into a viscous-locking medium (A) ..... O 95
Shock spectra of a nonlinear system (A). O 91

SHODRON, JOHN GEORGE
Obituary ..... O 142

SHORT, BYRON E.
Apparent thermal conductivity of fibrous materials (A) ..... My 96
Shell-and-tube heat exchangers: effect of bypass and clearance streams on the main stream temperature (A) .... N 103

SHORT, W. W.
Thermal transfer in turbulent gas streams. Effect of turbulence on local transport from spheres (A) ..... O 93

SIEDHOF, DONALD ARTHUR
Obituary ..... Je 132

SIEGEL, E. J.
Graphitization failures in piping (D) .... F 118

SIEGEL, R.
Experimental study of boiling in reduced and zero gravity fields (A) ..... N 103
Thermal radiation from a cylindrical enclosure with specified wall heat flux (A) ..... My 94

SILBERSTEIN, M. S.
Heavy-water-moderated nuclear power plants (A) ..... Mr 100

SIMONS, A. K.
Man's response to low-frequency vibration (A) ..... Ap 108

SIMULATION. *See* PHYSIOLOGY

SIMULATORS. *See* INDUSTRIAL TRAINING, POWER PLANTS—NUCLEAR

SINDING-LARSEN, G.
Biography ..... Ja 132
Elected Fellow of ASME ..... Ja 132

SINGH, B. R.
Study of critical velocity of stick-slip sliding (A) ..... F 107

SINTERING
Ductile sintered materials (A) ..... Ag 62

SIZER, PHILLIP S.
New development in surface and subsurface storm chokes (A) ..... D 90

SKALAK, RICHARD
Subharmonic oscillations of a pendulum (A) ..... Je 90

SKANTAR, E. T.
Automated testing of railway freight brake control values (A) ..... Jl 77

SKIRVIN, S. C.
Film cooling with multiple slots and louvers (A) ..... N 102

SLABS. *See* STRESSES AND STRAINS, THERMAL STRESSES

SLAYMAKER, R. R.
Biography ..... F 139
Elected Fellow of ASME ..... F 139

SLOAN, WILLIAM ALLAN
Obituary ..... My 138

SLUHAN, C. A.
Cutting fluids (a review of the literature for 1959) ..... S 72

SMIDDY, HAROLD FRANCIS
Receives distinguished service "Award in Industry" ..... D 103

SMITH, EDRIC BROOKS
Obituary ..... My 138

SMITH, HILTON A.
Adsorption of polar organic molecules on machined metal surfaces and properties of the resulting surface films (A) .. D 85

SMITH, J. B.
Boiler furnace fuel explosion survey (A). Ap 109

SMITH, J. C.
Spectrographic analysis of diesel-engine lubricating oils by the rotating-platform method (A) ..... Jl 77

SMITH, J. M.
Effect of density variation on heat transfer in the critical region (A) ..... N 100

SMITH, JOHN FREDERICK
Obituary ..... Je 132

SMITH, P. A.
Cutting fluids (a review of the literature for 1959) ..... S 72
Free machining steel
Part I—Tool-life characteristics of resulfurized steel (A) ..... Jl 68
Part II—Tool-life characteristics of leaded steel (A) ..... Jl 68

SMITH, P. E., JR.
Heat stress and the industrial worker .... Je 57

SMITH, WILLIAM PARKER
Obituary ..... Mr 139

SNOW, D. R.
Some results on continuously drilled fixed tube plates (A) ..... D 89

SNYDER, HERBERT WILLIAM
Obituary ..... Mr 139

SOEHNGEN, E. E.
Study of free-convection boundary-layer oscillations and their effects on heat transfer (A) ..... Ag 83

SOGIN, H. H.
Remarks on the temperature step functions on a flat plate in forced convection (A) ..... My 92

SOLAR ENERGY
American and Japanese authorities discuss solar energy applications at conference in Tokyo ..... F 136
Analysis of solar-furnace performance in mechanical testing at extremely high temperatures (A) ..... Je 91
Japan applies solar energy ..... Mr 48
Progress report: solar energy in 1960 ... D 41
Solar air conditioning with an ammonia-water absorption refrigeration system (A) ..... Ap 111
Solar-energy flat-plate absorbing panels (A) ..... D 77
Solar turbo power-plant design (A) ..... Ap 111

SOLDAN, H. M.
Graphitization failures in piping (D) .... F 118

SOLSNAES, LEIF STEPHENSON
Obituary ..... D 132

SOLTIS, R. F.
Observation of cavitation in a low hub-tip ratio axial-flow pump (A) ..... Je 97

SOMERS, E. V.
Optimization of a sandwiched thermoelectric device (A) ..... N 104
Thermoelectric power ..... Jl 40

SOMERS, J. C.
The manipulator: its design and application ..... F 64, Ag 90

SOMES, A. D.
Advances in steam turbines for marine propulsion (A) ..... F 106

SOMMER, G. M.
Design concept of welded-steel lathe (A) . Mr 96

SONNEMANN, GEORGE
Transient temperatures and thermal stresses in hollow cylinders due to heat generation (A) ..... My 95

SOO, S. L.
Experimental determination of statistical properties of two-phase turbulent motion (A) ..... My 90

SOOT BLOWERS
Soot blowers for high-temperature boilers (A) ..... My 71

SORENSON, ARTHUR, JR.
Discussion of the vibration characteristics of a simple mechanical connection (A) ..... F 107

SOUDER, C. W.
Design of the FPS-35 antenna (A) ..... My 87

SOUND. *See* HEAT TRANSFER

SOUTHWELL, RICHARD VINNE
Biography ..... Ja 106
Receives Timoshenko Medal ..... Ja 106

SPACE TRAVEL. *See also* PHYSIOLOGY, POWER PLANTS—SODIUM VAPOR, THERMODYNAMICS
The challenge of the 1960's ..... Mr 46
Exploration of space ..... N 53
Plasma-accelerator propulsion (A) ..... F 97
We can conquer interplanetary space with materials, energy, technology, and men ....but we must have more qualified young engineers entering the profession ..... Ap 128

SPACE VEHICLES. *Se also* HUMAN ENGINEERING
Advanced chemically fueled power supply for space vehicles (A) ..... Ag 78
Manual control of undamped systems subjected to force-coupled accelerations (A) ..... N 109
Optimized condenser-radiator for space applications (A) ..... S 92
Self-stabilizing gyro control system for space vehicles (A) ..... S 95
Space electric power application study (A) ..... S 93
Systems analysis of fast manned flights to Venus and Mars (A) ..... S 93

SPARROW, E. M.
Analysis, results, and interpretation for radiation between some simply arranged gray surfaces (A) ..... N 101
Application of variational methods to radiation heat-transfer calculations (A) ..... My 94
Mass transfer, flow, and heat transfer about a rotating disk (A) ..... F 110
Radiation heat transfer in a spherical enclosure containing a participating heat-generating gas (A) ..... N 101
Review of heat-transfer literature, 1959. Ag 47
Temperature distribution in an internally cooled, heat-generating solid (A). Ag 83

SPEAR, G. M.
Helixform bevel and hypoid gears (A) ... Ja 72

SPECTOR, BARUCH
Obituary ..... Je 132

SPECTROSCOPIC ANALYSIS. *See* STEEL ALLOYS

SPELMAN, W. B.
The FAA looks at jet transport mechanisms (A) ..... Ag 81

SPENCER, FREDERICK ALDEN
Obituary ..... F 144

SPENCER, HERBERT LINCOLN
Obituary ..... My 138

SPERRY, E. A.
100th anniversary to be marked ..... O 131

SPIELBERG, KURT
On three and two-dimensional disturbances of pipe flow (A) ..... O 89

SPILLER, W. R.
Biography ..... F 140
Elected Fellow of ASME ..... F 140

SPINCASTING. *See* PLASTICS

SPRAGUE, WILLIAM WALLACE
Obituary ..... N 140

SPRINGS
Analysis of buckling column spring with pivoted ends and uniform rectangular cross section (A) ..... Ag 86

SPROTT, A. L.
Experimental study of the effects of strong progressive sound fields on free-convection heat transfer from a horizontal cylinder (A) ..... N 99

SQUIER, J. M.
Maintenance control procedures for industrial lift trucks (A) ..... Jl 73

STACY, R. W.
Simulation of human physiological systems (A) ..... S 95

STAEBLER, ULYSSES M.
Power reactors—the next ten years ..... N 76

STAEGE, STEPHEN ALBERT
Obituary ..... Mr 139

STALCUP, E. F.
Flash evaporators ..... Ap 84

STALLARD, DAVID V.
Preliminary design of a roll-stabilization system for a ship (A) ..... N 106

STANDARDS
Recently published standards ..... Ja 123

STARBUCK, GEORGE FRANKLIN
Obituary ..... D 132

STAROS, ANTHONY
Some human factors considerations in the development of upper extremity prostheses (A) ..... F 112

STATISTICAL METHODS
How common is common sense? (A) .... Ap 108

STAUB, F. W.
Local and average heat-transfer and pressure-drop for refrigerants evaporating in horizontal tubes (A) ..... My 91

STAVRAKAS, E. J.
Mechanical properties of textile materials ..... Mr 58

STAWICKI, J. A.
Heat-transfer performance of condenser tubes (A) ..... My 91

STEAM. *See also* FLOW OF FLUIDS
Viscosity of steam and water at moderate pressures and temperatures (A).. O 87

STEAM CONDENSERS
Condenser tubes rolled in (A) ..... D 69
Heat-transfer performance of condenser tubes (A) ..... My 91

STEAM SAMPLING
Closing our gaps in our knowledge of steam sampling (A) ..... F 110
Results of steam sampling nozzle tests on evaporator vapor (A) ..... F 110

STEAM TURBINES. *See also* BEARINGS, PUMPS, ROTORS
Advances in steam turbines for marine propulsion (A) ..... F 106
Combined steam turbine-gas turbine plant for marine use (A) ..... My 88
Development associated with the super-pressure turbine for Eddystone Station Unit No. 1 (A) ..... Ap 105
Turbine-exhaust losses (A) ..... N 106
Turbine-testing facility ..... Jl 47

STEEL ALLOYS. *See also* HEAT TREATMENT
Application of a portable spectroscope to the rapid indentification of alloy steels (A) ..... Ja 67
Columbium-containing steels (A) ..... My 81
Free machining steel
Part I—Tool-life characteristics of resulfurized steel (A) ..... Jl 68
Part II—Tool-life characteristics of leaded steel (A) ..... Jl 68
Stainless-steel layered construction (A) Jl 63

STEIN, R. A.
Design control of overcompression in rotary-vane compressors (A) ..... Ja 69

STEIN, SAMUEL
Elimination of noise in the heat exchanger of a supersonic wind tunnel (A) ..... Ap 113

STELTZ, W. G.
Critical and two-phase flow of steam (A) F 106

STENNING, A. H.
Laminar boundary layers in oscillatory flow (A) ..... My 89

STEPANOFF, A. J.
Cavitation in centrifugal pumps with liquids other than water (A) ..... Mr 98

STEPHENSON, JAMES F.
Automation for liquid pipe lines (A) ..... D 87

STEPHENSON, M. E., JR.
Effect of apparent density and gas-cell size on the thermal conductivity of cellular materials (A) ..... My 95

STEPNIEWSKI, W. Z.
Tilt-wing propelloplane (D) ..... My 98

STEPP, ERMEL GRADY
Obituary ..... Ap 152

STERN, A. C.
Current status of air-pollution research in the United States (A) ..... F 111

STERNBERG, E.
Transient thermal stresses in a semi-infinite slab (A) ..... F 113

STERNLICHT, B.
Performance of elastic, centrally pivoted, sector, thrust-bearing pads—Part 1 (A) ..... D 84
Theoretical and experimental analysis of hydrostatic thrust bearings (A) ..... Mr 103

STEWART, JAMES ARTHUR
Obituary ..... Ag 140

STINE, L. G.
Maintenance-control center (AC) ..... F 121

STINSON, K. W.
Biography ..... F 138
Elected Fellow of ASME ..... F 138

STIRN, FRANK EDWIN
Obituary ..... Ap 152

STOCKFLETH, A.
Polyethylene pipe progress (A) ..... F 105

STOLL, A. M.
Role of the skin in heat transfer (A) ..... My 92

STOLTZ, J. F.
Techniques and economic considerations affecting automatic assembly of telephone products (A) ..... Je 100

STONE, H. M.
Field testing and adjusting of hydraulic turbine-generator to improve system regulation (A) ..... Ja 69

STONE, V. L.
Control of air pollution from oil-burning power plants (D) ..... Ag 92

STOOKEY, S. D.
Glass-ceramics ..... O 65

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

STOSS, D. R.
Application of a portable spectroscope to the rapid indentification of alloy steels (A) ..... Ja 67

STOVER, ROLLAND S.
Biography ..... Ag 127
Nominated for Director ..... Ag 127

STOWELL, HOWARD EMERY
Obituary ..... S 124

STRAIN GAGES
Theory and applications of strain-gage torque-measuring devices (A) ..... My 96

STRAIN HARDENING
Strain-hardening solutions to axisymmetric disks and tubes (A) ..... Mr 106

STRAKA, LEORA E.
Rubber developments; review of the literature for the years 1957–1959 ..... Ap 71

STRAUCHEN, DAVID MEADE
Obituary ..... O 142

STRESSES AND STRAINS. *See also* BEAMS, DEFORMATION, GEARS, METAL CREEP, METAL FATIGUE, METAL TESTING—FATIGUE, PLASTICITY, PRESSURE VESSELS, THERMAL STRESSES
Analysis of the yielded compound cylinder (A) ..... S 91
Bending stress distribution at the base of a stationary crack (A) ..... O 96
Plane-stress unloading waves emanating from a suddenly punched hole in a stretched elastic plate (A) ..... Ja 74
Stresses in a slab having a spherical cavity under circular bending (A) ..... F 113

STRINGS. *See* VIBRATION

STRUCTURES. *See also* AIRPLANES, DEFORMATION, HEAT TRANSFER, OFFICE BUILDINGS, TOWERS
Elastic instability of rectangular sandwich panel of orthotropic core with different face thicknesses and materials (A) ..... O 92
Elastomers as a structural material (A). D 86
Optimum tolerances of sheet materials for flight vehicles (A) ..... Ap 113
Stress analysis of a cylindrical shell-ring stiffener (A) ..... D 90

STUFFING BOXES
Development of floating ring type stuffing boxes for Eddystone boiler feed pumps (A) ..... Ap 106

STUMP, FRANCIS C.
Optimized condenser-radiator for space applications (A) ..... S 92

SU, HSUAN-LOH
Design by quantitative factor of safety (A) ..... F 107

SUBWAYS. *See* RAILROAD CARS

SUGAR. *See* MATERIALS HANDLING

SULFUR MINING
Grand Isle Sulphur Mine heating plant and underwater sulfur line design (A) ..... Ap 103

SUPERCHARGERS
Buchi turbochargers (A) ..... O 74
Design and development of turbochargers for the General Motors Corporation series 567 engines (A) ..... Jl 76

SUPERHEATERS. *See* BOILER CORROSION

SUPERSONICS. *See* DIFFUSERS

SUPERVISORS. *See* MANAGEMENT

SURFACE FILMS. *See* METAL CUTTING

SURGE VESSELS
Charts for determining size of surge suppressors for pump-discharge lines (A). Mr 98
Review of surge-tank stability criteria (A) ..... Mr 98

SURGES. *See* PIPELINES

SUSPENSIONS. *See* FLOW OF FLUIDS

SUTHERLAND, W. A.
Heat-transfer and flow-friction characteristics of crossed-rod matrices (A) ... My 92

SVANOE, W. H. T.
Maintenance welding ..... S 64

SWANN, WILLIAM FRANCIS GRAY
To receive Elliott Cresson Medal ..... S 105

SWANSON, B. W.
Optimization of a sandwiched thermoelectric device (A) ..... N 104

SYBERT, W. M.
Economics of the steam-gas turbine exhaust-fired cycle for medium-size utilities (A) ..... Je 93

SYKES, WILFRED
Honorary member of AIME ..... Mr 119

SYNTHETIC PRODUCTS. *See* RUBBER

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

SZCZEPANSKI, E.
Energy versus stress theories for combined stress—a fatigue experiment using a rotating disk (A) ..... Jl 71

SZEL, J. V.
Analysis, results, and interpretation for radiation between some simply arranged gray surfaces (A) ..... N 101

T

TAKEYAMA, H.
Photoelastic analysis of machining stresses (A) ..... Ja 70

TANGERINI, C. C.
Report on 9000-hr operation of marine propulsion gas turbine in the John Sergeant (A) ..... Je 93

TANKS. *See also* STRUCTURES
Free, transverse vibrations of a solid elastic-mass in an infinitely long, rigid, circular-cylindrical tank (A) .... O 95

TAO, L. N.
On combined free and forced convection in channels (A) ..... F 110
Theory of lubrication with turbulent flow and its application to slider bearings (A) ..... F 113

TAYLOR, C. W.
Videne—a polyester laminating and surfacing film (A) ..... F 104

TAYLOR, D. E.
Transient heating of two-element slabs exposed to a plane heat source (A) .... S 90

TAYLOR, F. C.
Reduction of turbine runner vibration and noise (A) ..... Je 95

TAYLOR, G. W.
Development of a speed and load-sensing governor (A) ..... Jl 75

TAYLOR, HARVEY BIRCHARD
Obituary ..... Ap 152

TECHNOLOGY
Science and technology are liberal arts (A) ..... Je 108
World still looks to U.S.A. for technical leadership (A) ..... Jl 84

TEICHMANN, HENRY FORD
Obituary ..... Jl 122

TELEPHONE APPARATUS
"Dial 'D' for Democracy" (A) ..... F 91
Eliminating the butt-in (A) ..... D 71
Push-button telephones (A) ..... Ja 54

TEMEL, A. O.
Energy versus stress theories for combined stress—a fatigue experiment using a rotating disk (A) ..... Jl 71

TEMPERATURE CONTROL SYSTEMS. *See* EARTH SATELLITES

TEST, F. L.
Influence of bypass channels on the laminar flow heat-transfer and fluid-friction characteristics of shell and tube heat exchangers (A) ..... Ag 84

TESTING MACHINES
More laboratory for less money ..... My 57

TEXTILE INDUSTRY. *See also* WASTE DISPOSAL
Maintenance records simplified (A) ..... Je 100

TEXTILE MACHINERY
Interaction of textile structures and high-speed textile processes (A) ..... Ap 111
Use of textile machines as research tools (A) ..... My 88

TEXTILES. *See also* TIRES
Mechanical properties of textile materials ..... Mr 58

THAL-LARSEN, HERMAN
Dynamics of heat exchangers and their models (A) ..... Ap 112

THERMAL ENGINES. *See* ENGINES

THERMAL STRESSES. *See also* METAL TESTING—FATIGUE
Correlation of theoretical and photothermoelastic results on thermal stresses in idealized wing structures (A) ..... Je 90
Elastoplastic thick-walled sphere subjected to a radial temperature gradient (A) ..... O 91
Thermal stress in a viscoelastic-plastic plate with temperature-dependent yield stress (A) ..... Mr 106
Thermal stress protection in starting and loading boiler-turbine-generator combinations (A) ..... N 105
Thermal stresses due to disturbance of uniform heat flow by an insulated ovaloid hole (A) ..... O 94
Thermal stresses in an elastic, work-hardening sphere (A) ..... O 94

THERMAL STRESSES (*continued*)
Thermoelastic stresses in beams (A) ..... O 92
Transient and residual thermal stresses in an elastic-plastic cylinder (A) ..... S 98
Transient temperatures and thermal stresses in hollow cylinders due to heat generation (A) ..... My 95
Transient thermal stresses in a semi-infinite slab (A) ..... F 113

THERMIONIC CONVERTERS
Direct converter uses ordinary fuel (A) .. S 79

THERMOCOUPLES. *See* INSTRUMENTS—TEMPERATURE

THERMODYNAMICS. *See also* WATER
Certain thermodynamic and transport properties of the atmospheres of Venus, Mars, and Jupiter (A) ..... My 94
Free expansion of dry and moist air (A). Ag 82

THERMOELECTRICITY. *See also* METAL TESTING
Commercial thermoelectric generator (A) ..... My 73
New thermoelectric alloy (A) ..... N 85
Optimization of a sandwiched thermoelectric device (A) ..... N 104
Thermoelectric A-C production (A) ..... Mr 87
Thermoelectric experimental kit (A) .... Ag 65
Thermoelectric power ..... Jl 40

THIELKER, E. E.
Elastomers as a structural material (A) .. D 86

THIGPEN, J. J.
Apparent thermal conductivity of fibrous materials (A) ..... My 96

THOM, GEORGE B.
Biography ..... Ag 123
Nominated for Vice-President ..... Ag 123

THOMAS, ADOLPH EMIL
Obituary ..... Jl 122

THOMASON, JOSEPH J.
Obituary ..... Ag 140

THOMPSON, A. L.
Some corrosion effects in accelerated cavitation damage (A) ..... F 108

THOMPSON, FRANCIS A.
Reliability control ..... Je 54

THOMPSON, HENRY CLAY, JR.
Obituary ..... F 144

THOMPSON, WARREN R.
How to double your income—the consulting engineer's viewpoint (A) ..... Ja 133

THOMSEN, E. G.
Critical comparison of metal-cutting theories with new experimental data (A) ..... Ja 71
Metal cutting (a review of the literature for 1959) ..... S 68
Role of friction in metal cutting (A) ..... Ja 71
Some problems of press forging lead and aluminum (A) ..... Mr 96

THOMSON, FRANCIS DU PONT
Obituary ..... F 144

THOMSON, W. T.
Shock spectra of a nonlinear system (A). O 91

THORNE, C. J.
Some gyroscopic oscillations (A) ..... O 96

THUERING, G. L.
Machinability of nodular cast irons—Part 1: Tool forces and flank adhesion (A) ..... Jl 70

TIDAL POWER. *See* POWER PLANTS—HYDROELECTRIC

TIEN, C. L.
Heat transfer by a turbulently flowing fluid-solids mixture in a pipe (A) ..... N 101

TILLER, R. J.
Utilization of photography in plant engineering (A) ..... D 91

TIMAN, HANS
On three and two-dimensional disturbances of pipe flow (A) ..... O 89

TIMMS, R. J.
Analysis of axially loaded annular shells with applications to welded bellows (A) ..... My 96

TIRES. *See also* RAILROAD CARS
New tire-reinforcing materials ..... F 76
Power loss of tires (A) ..... O 79
Rubber developments; review of the literature for the years 1957–1959 ..... Ap 71
Tires tested at 510 mph (A) ..... Ap 96

TITANIUM. *See also* WELDING

TOBIAS, S. A.
Biography ..... Ja 107
Receives Blackall Machine Tool and Gage Award ..... Ja 107

TODD, WILLIAM THOMAS, II
Obituary ..... N 140

TOEPLITZ, JOHN H.
Air Force maintenance on the J79 engine (A) ..... S 96

TOLINS, I. S.
Measurement of very low frictional torques in rotating equipment (A).... F 107

TORNBLOM, DARRELL H.
Obituary..... D 132

TORNG, H. C.
Investigation of periodic modes of sampled-data control systems containing a saturating element (A)..... N 108

TORQUE CONVERTERS. *See* HYDRAULIC DRIVES

TORQUEMETERS. *See also* DYNAMOMETERS
Measurement of very low frictional torques in rotating equipment (A).... F 107

TOULOUKIAN, Y. S.
Heat transfer to liquid metals with variable properties (A)..... My 93

TOWERS
EHV tower designs (A)..... Ag 71

TOWING TANKS
Three new ship model basins (A)..... Ja 64

TRACTORS. *See* MOTOR VEHICLES

TRAINER, J. E.
Design for motivation (A)..... Jl 105

TRAMPOSCH, HERBERT
Correlation of theoretical and photothermoelastic results on thermal stresses in idealized wing structures (A)..... Je 90

TRANSFORMERS. *See* ELECTRICAL EQUIPMENT

TRANSLATION. *See* COMPUTERS

TRANSMISSIONS. *See* DRIVES, GEARS, HYDRAULIC DRIVES

TRANSPORTATION. *See also* ESCALATORS, LIQUEFIED PETROLEUM GASES, SHIPS
Moving sidewalks (A)..... O 75

TRÄSS, OLEV
Sublimation mass transfer through compressible boundary layers on a flat plate (A)..... F 109

TRUCKS. *See* INDUSTRIAL TRUCKS, MOTOR VEHICLES

TRUMBULL, ROBERT GAY
Obituary..... O 142

TRUMPLER, W. E., JR.
Development associated with the supercritical pressure turbine for Eddystone Station Unit No. 1 (A)..... Ap 105

TSAI, CHEN-PENG
Stresses in a slab having a spherical cavity under circular bending (A)..... F 113

TUBE SHEETS
Some results on continuously drilled fixed tube plates (A)..... D 89

TUBES. *See* HEAT TRANSFER

TUCKER, R. R.
Biography..... F 139
Elected Fellow of ASME..... F 139

TUCKER, WILLIAM B.
Obituary..... O 142

TUNGSTEN. *See* METAL COATINGS

TUNIS, IRWIN L.
The engineer and the law..... Jl 28

TURBINE TESTING
Turbine-testing facility..... Jl 47

TURBINES
Turbine bearing design..... F 82

TURBOCHARGERS. *See* SUPERCHARGERS

TURBOMACHINERY
Sheet-metal turbine buckets (A)..... D 73

TURBOPROPS. *See* AIRPLANE ENGINES

U

UDALL, PHILLIP ADERUCH
Obituary..... Ja 138

ULMER, R. C.
Water-treatment, corrosion, and internal deposit studies for Eddystone (A)..... Ap 105

ULTRASONICS. *See also* NONDESTRUCTIVE TESTING, WELDING
Ultrasonic cleaning (A)..... Je 79

UNGAR, E. E.
Mechanics of the sheet-bending process (A)..... Ap 113
Tube metal temperatures for structural design (A)..... Ap 103

UNGAR, J. S.
Heat-transfer performance of condenser tubes (A)..... My 91

UNITED ENGINEERING CENTER
Action in the homestretch..... Mr 122
ASME far short of quota..... S 110
ASME on the move..... D 114

UNITED ENGINEERING CENTER (*continued*)
ASME's UEC fund campaign still bogged down..... O 111
Bright spots on the member gifts front.. N 121
Construction on schedule..... My 116
Construction vs. fund campaign: a study in contrasts..... Ap 130
Going up: UEC structural steel..... Je 112
A memorable day? (Ed)..... Ag 33
Operation homestretch; how is ASME doing?..... F 128
Region V first over the top in ASME member gifts campaign..... Jl 94
United Engineering Center cornerstone set..... Ag 100
UET 1959–1960 report highlights progress..... D 101

USISKIN, C. M.
Experimental study of boiling in reduced and zero gravity fields (A)..... N 103
Radiation heat transfer in a spherical enclosure containing a participating heat-generating gas (A)..... N 101
Thermal radiation from a cylindrical enclosure with specified wall heat flux (A)..... My 94

USUI, E.
Photoelastic analysis of machining stresses (A)..... Ja 70

V

VALVERDE, N.
Coefficients of discharge of a quadrant-type concentric orifice meter, with flange, radius, and corner taps (A).... Ja 72

VALVES. *See also* RAILROAD BRAKES, SAFETY VALVES
Design of flapper valves (A)..... Ag 86
Diaphragm actuated control valve terminology (A)..... Ap 112
Improvement of the power efficiency of a hydraulic control system by the use of a gain compensated control valve (A)..... N 108
Relief valves for mobile applications (A) Mr 99
Terylene diaphragm valves (A)..... Jl 67

VAN COTT, W. H.
Report on 9000-hr operation of marine propulsion gas turbine in the John Sergeant (A)..... Je 93

VAN DER LINGEN, T. W.
Jet pump design theory (A)..... Je 95

VAN HUFF, N. E.
Natural-circulation tests with water at 800 to 2000 psia under nonboiling, local boiling, and bulk boiling conditions (A)..... N 102

VAN LE, N.
Supersonic diffuser for radial and mixed flow compressors (A)..... Je 97

VAN VLACK, LAWRENCE H. (author)
Elements of materials science (BR)..... My 99

VAN WYLEN, G. J.
Experimental determination of limit of supersaturation of nitrogen vapor expanding in a nozzle (A)..... Ag 84

VAUGHAN, P. S.
Economics of engine power development of the Alco 251 engine (A)..... Jl 76

VEHRENCAMP, J. E.
Temperature control system for the Atlas Able-4 lunar satellite (A)..... S 94

VENTURI TUBES. *See* FLUID METERS

VERMES, GÉZA
Fluid mechanics approach to the labyrinth seal leakage problem (A)..... Je 94

VIBRATION. *See also* METAL FINISHING, PHYSIOLOGY, SHOCK
Application and range of the tuned housing vibration damper (A)..... Ag 87
Axially symmetric extensional vibrations of a circular disk with a concentric hole (A)..... Mr 106
Discussion of the vibration characteristics of a simple mechanical connection (A)..... F 107
Effect of vibration on the load-carrying capacity of parallel surface thrust bearings (A)..... Je 99
Extensional vibrations and waves in a circular disk and a semi-infinite plate (A)..... S 98
Forced lateral vibration of a uniform cantilever beam with internal and external damping (A)..... O 89
Free, transverse vibrations of a solid elastic-mass in an infinitely long, rigid, circular-cylindrical tank (A)..... O 95
Man's response to low-frequency vibration (A)..... Ap 108

VIBRATION (*continued*)
Method for investigating certain eigenvalue problems of the buckling and vibration of plates (A)..... O 92
Random excitation of a loaded nonlinear string (A)..... O 93
Sinusiodal excitation of a system with bilinear hysteresis (A)..... O 88
Stability of a turbine-generator rotor including the effects of certain types of steam and bearing excitations (A).... O 88
Steady-state undamped vibrations of a class of nonlinear discrete systems (A)..... F 115
Study of vibration frequencies under impact conditions (A)..... Mr 103
Subharmonic oscillations of a pendulum (A)..... Je 90
Torsional vibration problem as associated with synchronous motor driven machines (A)..... F 109
Vibration engineering; a practical treatise on the balancing of engines, mechanical vibration, and vibration of isolation (BR)..... Ap 116
Vibration of shaft ropes with time variable length, treated by means of Riemann's method (A)..... Ag 86
Vibration of water-turbine draft tubes (A)..... Ja 68
Vibration response of a linear undamped system resting on a nonlinear spring (A)..... O 88

VIBRATION MOUNTINGS
Analysis and design of tangent elasticity vibration isolators (A)..... S 91
Another structural-damping material (A)..... Ap 97
Mechanical vibration filters with nonlinear characteristics (A)..... F 108
On the use of clearance in viscous dampers to limit high-frequency force transmission (A)..... S 91
Viscoelastic damping (A)..... Mr 81

VIEHMANN, N. J.
A career in sales engineering..... Je 125

VISCOSITY. *See* FLUID METERS

VISKANTA, R.
Heat transfer to liquid metals with variable properties (A)..... My 93

VITKUS, P. L.
Multipoint electronic manometer system for low-pressure hypersonic wind tunnels (A)..... Ja 66

VLIET, G. C.
Forced-convection heat transfer from an isothermal sphere to water (A)..... N 102

VOADEN, G. H.
New runaway speed limiter for Kaplan turbines (A)..... Ja 68

VOGT, C. J.
Adiabatic bulk modulus of normal paraffin hydrocarbons from hexane to hexadecane (A)..... My 90

VONDERHEIDE, JOHN
Maintenance men—important today, a necessity tomorrow (A)..... Jl 74

VON HOHENLEITEN, H. L.
Use of transparent scale models in the design of dust-collector and gas duct systems for coal-burning electric-generating stations (A)..... F 111

VON SALIS, J.
Three years' operating experience with 7500 kw gas-turbine plants in Belgian steelworks (A)..... Je 91

VORTEXES. *See* FLOW OF FLUIDS

VRANA, J. C.
Relativity and the mechanical engineer (D)..... Ag 90

W

WAGNER, J. T.
Turbine-testing facility..... Jl 47

WAGONER, C. L.
Oil-ash corrosion of superheater alloys in a pilot-scale furnace (A)..... My 86

WAITKUS, JOSEPH
Low-level economizer: a design study (D)..... N 110

WAKES. *See* DIFFUSERS

WALCZAK, JOSEPH BENJAMIN
Obituary..... D 132

WALDRON, J. LAURENCE
Obituary..... F 144

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

WALES, CHARLES CLARKE
Obituary ..... Ap 152

WALKER, RAYMOND W.
Floating vessel drilling and multicompletion method (A) ..... S 91

WALLIS, GRAHAM B.
Two-phase slug flow (A) ..... N 102

WANDRISCO, J. M.
Study of the defects that originate and develop in the treads of railroad wheels during service (A) ..... Jl 77

WANG, KUNG-CHIH
Obituary ..... Ja 138

WARE, CHESTER D.
Heat transfer from humid air to fin and tube extended surface cooling coils (A) ..... O 86

WAREHOUSES. *See* MATERIALS HANDLING

WARGA, J. J.
Use of the center notch-tensile test to evaluate rocket-chamber materials (A) ..... Jl 73

WARNER, PAUL C.
Turbine bearing design ..... F 82

WARREN, GLENN B.
An engineer looks at education ..... Ap 58
Foresees steam production by hydrogen bombs (A) ..... N 128
Receives New York State Society of Professional Engineers "Engineer of the Year" award for 1960 ..... N 128
What may be ahead in power production ..... My 61
Who should manage engineers? ..... S 54

WASTE DISPOSAL
Evaporator solves radioactive waste disposal (A) ..... Ja 60
Textile waste treatment—what to do about it (A) ..... Je 100

WATER
Heat transfer to water in turbulent flow in internally heated annuli
Part 1—Stationary flow (A) ..... N 100
Part 2—Pulsating flow (A) ..... N 100
Joint Committee on Uniformity of Methods of Water Examination, 1960 annual report ..... Jl 116
Smoothed pressure—volume—temperature data for water in the critical region derived from experimental measurements (A) ..... N 98
Survey of P-V-T data for water in the critical region (A) ..... N 98
Viscosity of steam and water at moderate pressures and temperatures (A) .. O 87

WATER HAMMER. *See also* SURGE VESSELS
Pressure oscillations in a water-cooled nuclear reactor induced by water-hammer waves (A) ..... Je 97

WATER PIPELINES
Wooden pipeline (A) ..... Ap 97

WATER SUPPLY. *See also* SALT WATER
Creating storage basins ..... Ja 36
Drilling wells in ice with steam (A) ..... D 76
Ground water ..... Ja 34
Industrial water ..... Ja 31
The nation's water resources ..... Ja 31
Water management in industry ..... Ja 33
Water wells ..... Ja 35

WATER TREATMENT. *See also* SALT WATER
Development of a prototype for a large electrodialysis cell for treating brackish waters (A) ..... S 91

WATSON, A. C.
Moisture migration in an aircraft cabin wall (A) ..... Ag 80

WATSON, K. S.
Water management in industry ..... Ja 33

WAVE MECHANICS
Dispersion of flexural waves in an elastic, circular cylinder (A) ..... Mr 106
Flexural stress waves in an infinite elastic plate due to a suddenly applied concentrated transverse load (A) .... O 95
On the response of an elastic half-space to a moving blast wave (A) ..... O 95

WAYMAN, W. E.
Advanced chemically fueled power supply for space vehicles (A) ..... Ag 78

WEATHERWAX, W. F.
Design and development of a convective aircooled turbine and test facility (A) .Ap 106

WEAVER, E. W.
Biography ..... Jl 109
Elected Fellow of ASME ..... Jl 109
Receives Trinks Award ..... Ag 105

WEAVER, PAUL
Water-well construction ..... Ja 35

WEBB, J. C.
Safe conveyers ..... Jl 34

WEBB, PAUL
Exposure to aerodynamic heating transients ..... Je 60

WEEKS, G. M.
How common is common sense? (A) ... Ap 108

WEESE, J. A.
Stress distributions analyzed in bispherical co-ordinates (A) ..... O 94

WEIGHING MACHINES
Automatic weighing system (A) ..... D 70

WEIGHT APPROXIMATION
Structural weight approximation for a bell-nozzle divergent section (A) ..... Ap 113

WEIL, N. A.
Junction problem of solid-slotted cylindrical shells (A) ..... S 98

WEINBERG, PHILIP H.
Obituary ..... D 132

WEINER, J. H.
Thermal stress in a viscoelastic-plastic plate with temperature-dependent yield stress (A) ..... Mr 106

WEISS, A.
Natural-circulation tests with water at 800 to 2000 psia under nonboiling, local boiling, and bulk boiling conditions (A) ..... N 102

WELCH, W. P.
Thermal instability in high-speed gearing (A) ..... F 106

WELDED JOINTS
Graphitization failures in piping (D) ... F 117

WELDING AND CUTTING. *See also* BRAZING, BURSTING TESTS
AEC Welding Forum, San Antonio, 1960 ..... D 111
Arc welding of a Ni-Cr-Fe (Inconel) alloy for nuclear power plants (A) ..... Jl 72
Automatic gouging tool (A) ..... Ap 95
"Blueprint" for superweldable steels (A) ..... S 84
Composite welder (A) ..... Je 82
Continuous weld inspection (A) ..... My 72
Diffusion welding (A) ..... Je 82
Electron-beam welding-machining (A) .. Mr 78
Electroslag welding (A) ..... Ap 94
Facilities for handling and welding assemblies in the machinery industry (A) ..... Mr 97
Maintenance welding ..... S 64
Studies of the design of steel castings and steel weldments as related to methods of their manufacture (A) .... Ag 85
Test for hot cracking due to welding (A) . Mr 82
Ultrasonic welding of titanium (A) ..... My 72
Welding cast iron (A) ..... My 78
Welding processes ..... My 43

WELL DRILLING. *See* PETROLEUM—WELL EQUIPMENT, WATER SUPPLY

WELLAUER, E. J.
Analysis of factors used for strength rating helical gears (A) ..... Mr 100
Bending strength of gear teeth by cantilever-plate theory (A) ..... Mr 100

WELLS, WILLIAM GRAHAM
Theoretical and experimental investigation of a high performance jet pump utilizing boundary-layer control (A) .. S 97

WELTMER, W. W.
Reversible pump-turbines at Niagara Falls ..... Mr 74, O 99

WERKEMA, T. E.
Plastic films in construction and agriculture (A) ..... F 104

WESSEL, E. T.
Brittle fracture characteristics of a reactor pressure vessel steel (A) ..... Jl 73

WEST, G. L., JR.
Distinguishing aspects of marine engineering (A) ..... F 105

WESTCOTT, J. C.
Throat tap nozzles used for accurate flow measurements (A) ..... My 96

WESTERVELT, WILLIAM IRVING
Obituary ..... Je 132

WHEELER, B. E.
Simplified instrumentation and field checking of hydraulic turbine governors (A) ..... Ja 69

WHEELOCK, RAY NATHANIEL
Obituary ..... My 138

WHEELS
Stresses in wrought-steel wheel rims and their relation to wheel life (A) ..... Mr 104
Study of the defects that originate and develop in the treads of railroad wheels during service (A) ..... Jl 77

WHELCHEL, C. C.
Pressure suppression containment for nuclear power plants (A) ..... My 86

WHITE, HARRY J.
Electrostatic precipitators ..... My 54, S 100

WICKERSHAM, JOHN HOUGH
Obituary ..... N 140

WICKSTRAND, N. M.
Calculating effective thrust loads in axial-piston pumps (A) ..... Mr 98

WIDMER, ROBERT
Creep-rupture properties of 80 Ni-20 Cr alloys (A) ..... Mr 103
Role of atmosphere in the creep-rupture behavior of 80 Ni-20 Cr alloys (A) ... Mr 102

WIEDERSUM, G. C., JR.
Test to anticipate the performance of steam piping at 5000 psi and 1200 F (A) ..... F 105

WIELAND, CHARLES FREDERICK
Obituary ..... Ap 152

WIESNER, F. J., JR.
Practical stage performance correlations for centrifugal compressors (A) ..... Je 98

WIGHTMAN, J. C.
Uniform design criteria (A) ..... Ag 82

WILDER, A. B.
Graphitization failures in piping (D) .... F 118

WILDMANN, M.
Consideration of the starting of gas lubricated bearings (A) ..... D 84

WILKE, RICHARD H.
Steam-turbine buckets automatically milled ..... Ja 44

WILKERSON, L. E.
Effect of scale form on the speed and accuracy of scale reading (A) ..... Ag 85

WILLARD, ARTHUR CUTTS
Obituary ..... D 132

WILLARD, J. A.
Classics in management (BR) ..... D 97

WILLIAMS, J. HOWARD
Obituary ..... S 124

WILLIAMS, M. L.
Bending stress distribution at the base of a stationary crack (A) ..... O 96

WILLIAMS, ROBERT J.
A career in sales engineering ..... Je 124

WILLIAMSON, G. V.
Control of air pollution from oil-burning power plants (D) ..... Ag 93

WILLIAMSON, R. B.
Development associated with the superpressure turbine for Eddystone Station Unit No. 1 (A) ..... Ap 105

WILLIS, CHARLES C.
Obituary ..... O 142

WILLISON, R. E.
Application of model studies to industrial gas-flow systems (A) ..... Ap 110

WILLKIE, HERMAN FREDERICK
Obituary ..... Ap 152

WILSON, W. B.
Economic selection of steam and power supplies for refineries and petrochemical plants (A) ..... Ap 102

WILSON, W. KER (author)
Vibration engineering. A practical treatise on the balancing of engines, mechanical vibration, and vibration of isolation (BR) ..... Ap 116

WIND TUNNELS. *See also* INSTRUMENTS—PRESSURE
Elimination of noise in the heat exchanger of a supersonic wind tunnel (A) ..... Ap 113
Supersonic-wind-tunnel air-drying-system design (A) ..... Ap 113

WINYARD, FREDERICK WILLIAM
Obituary ..... My 138

WIRE. *See* TIRES

WIRE ROPE
Vibration of shaft ropes with time variable length, treated by means of Riemann's method (A) ..... Ag 86

WOCHOLSKI, B.
Planning human environment into industrial processing (A) ..... My 97

WOLF, E. F.
Use of transparent scale models in the design of dust-collector and gas duct systems for coal-burning electric-generating stations (A) ..... A 111

WOLFE, G. D.
Factor management and labor controls (A) ..... Ag 88

WOLFSON, LOUIS E.
How American business can recapture its pioneering spirit (A) ..... Jl 113

WOOD, G. M.
Experimental study of cavitation in a mixed flow pump impeller (A) ..... Je 96

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial

WOOD, JOSEPH KAYE
Obituary ..... Je 132

WOOD. *See* PETROLEUM PIPELINES, WATER PIPELINES

WOODCOCK, A. H.
Clothed man (AC) ..... F 121

WORLD POWER CONFERENCE
Madrid, 1960 ..... Mr 118
Sectional World Power Conference (A) .. Ag 76

WORLEY, ROBERT W.
Industry's need for quality electric power service (A) ..... N 105

WORLEY, W. J.
Mechanical vibration filters with nonlinear characteristics (A) ..... F 108

WORMS. *See* GEARS

WRIGHT, D. K., JR.
Studies of the design of steel castings and steel weldments as related to methods of their manufacture (A) .... Ag 85

WRIGHT, WILLIAM QUINBY
Obituary ..... Jl 122

X

X-RAY. *See* INSPECTION

Y

YAGER, RICHARD COLEMAN
Obituary ..... D 132

YANG, C. T.
Analysis of power spinning cones (A) ... Mr 97

YANG, KWANG-TZU
Possible similarity solutions for laminar free convection on vertical plates and cylinders (A) ..... F 115

YANG, S. T.
Correlation of bendability of materials with their tensile properties (A) ..... Ja 70

YARNALL, D. ROBERT, JR.
The vital spot in management ..... N 46

YARYMOVYCH, M. I.
Subharmonic oscillations of a pendulum (A) ..... Je 90

YELLOTT, JOHN I.
Japan applies solar energy ..... Mr 48
Progress report: solar energy in 1960 ... D 41

YEN, K. T.
On the indeterminateness of the boundary conditions for the mixing of two parallel streams (A) ..... Ap 113

YIN, MIH
Optimum response of second-order, velocity-controlled systems with contactor control (A) ..... N 107

YOUNG, D. F.
Coring phenomenon in the flow of suspensions in vertical tubes (A) ..... Je 97

YUGE, T.
Experiments on heat transfer from spheres including combined natural and forced convection (A) ..... F 110

Z

ZACHMANOGLOU, E. C.
Perturbation solutions for gas-lubricating films (A) ..... D 85

ZAID, M.
Deformation and moments in elastically restrained circular plates under arbitrary load or linear thermal gradient (A) ..... F 107
Measurement of very low frictional torques in rotating equipment (A) ..... F 107

ZONE REFINING. *See* METALLURGY

ZOSCHAK, R. J.
Experimental investigation of fuel additives in a supercharged boiler (A) ..... Ap 107

ZUBLIN, JOHN A.
Obituary ..... S 124

ZUMMER, ANTHONY S.
Patents reconsidered ..... Ap 143

ZWEIGHAFT, GERSON
Obituary ..... D 132

ZWICKY, E. E., JR.
Thermal stress in a viscoelastic-plastic plate with temperature-dependent yield stress (A) ..... Mr 106
Transient and residual thermal stresses in an elastic-plastic cylinder (A) ..... S 98

ZWILSKY, K. M.
Recent advances in dispersion strengthened metal-metal oxide structures (A) ..... Jl 73

(A) denotes Abstract; (AC) Author's Closure; (BR) Book Review; (C) Correspondence; (D) Discussion; (Ed) Editorial